The SUSHI Protocol: Automating the Transfer of Usage Statistics

by Cynthia Hodgson

Introduction

In October 2005, an ad hoc group of librarians, system vendors, and content aggregators was taken under the NISO umbrella as the Standardized Usage Statistics Harvesting Initiative (SUSHI) working group with the goal of developing a protocol to automate the transfer of Project COUNTER Code of Practice usage statistics from providers to library electronic repositories.

This article describes the background of SUSHI, explains the protocol and its value to different types of users, identifies several implementations that are underway, and provides the planned steps in the protocol’s issuance as a NISO standard.

Electronic Collection Expenditures

Libraries are spending an ever-increasing portion of their collection development budget on electronic resources of all types. The Association of Research Libraries (ARL), which has collected and reported on collection expenditures of member libraries since 1961, reported in the 2003-2004 ARL Library Trends that, “Expenditures for all types of electronic resources (computer files, electronic serials, bibliographic utilities and networks, computer hardware and software, and document delivery/interlibrary loans) have increased substantially…Electronic materials expenditures have grown anywhere between three and ten times faster than [all] materials expenditures. The average ARL university library now spends over 31% of its materials budget on electronic materials, and fourteen ARL libraries report that they spent more than 50% of their materials budget [on them].”[1] Tim Jewell, Director, Information Resources, Collections and Scholarly Communication at the University of Washington Libraries agrees. “During 2004-2005 we spent nearly $4 million, or about 36% of our ~$10.6 million materials budget on electronic resources, which is more than twice what it was four years ago (2000-2001).”

Electronic resources provide libraries with something that is not readily available with printed resources—usage data. Data about how much online resources are used is becoming increasingly important in collection development decisions and for justifying these expenditures to management. As Bill Hoffman, a Business Analyst with Swets Information Services points out, “The ability of Swets to provide usage data for the electronic resources we host has become an increasingly value-added feature of our services.”
The problem with all this electronic resource usage data was that libraries were drowning in a rich volume of previously unavailable data, but there were no standards in defining and collecting the data that would ensure an apples to apples comparison across suppliers. Enter: Project COUNTER.

Project COUNTER

Project COUNTER (Counting Online Usage of NeTworked Electronic Resources) was launched in March 2002 as an international initiative to help librarians and publishers in the recording and exchange of usage statistics for electronic resources. “The basis for COUNTER,” according to Peter Shepherd, COUNTER Project Director, “is more consistency and accountability for vendor usage data.” By following COUNTER’s Code of Practice, vendors can provide library customers with Excel or CSV (comma delimited) files of usage data using COUNTER’s standardized formats and data elements. The result is a consistent, credible, and comparable set of usage data from multiple content providers.

The first Code of Practice was issued in December 2002, focusing on e-journals and databases. It specified an extensive list of data elements with standardized definitions, described exactly how to count and record usage, and defined the summary report fields, formats, and schedule. Release 2 of the Journals and Databases Code of Practice [2] was issued in April 2005 and became valid January 1, 2006. It contains four reports for Journals (two are optional) and three reports for databases. Initially only Excel and CSV formats for the reports were defined. An XML schema for Release 1 was developed, but due to lack of usage the schema was not updated for Release 2.


Project COUNTER maintains a registry of compliant vendors [4] who have certified compliance with the code. Currently, 43 vendors have certified compliance with Release 1, including almost all of the major STM publishers. Over 30 vendors are now fully compliant with Release 2, with most of the others in some stage of implementing the changes from the previous release. Interest in using COUNTER is growing among publishers outside the STM arena; legal information providers are considering use of the format. Beginning in 2007, vendors will be required to have an independent audit by a Certified Public Accountant or an organization accredited by COUNTER to certify their compliance with the Code of Practice.

The success of COUNTER created a new problem for librarians—the amount of time they spend managing their COUNTER reports. As more content providers responded to demands to comply with COUNTER, the amount of data to be retrieved, stored, aggregated, and analyzed grew and since all of this effort was done manually, librarians began to feel overwhelmed with the time required to manage this data. Enter: SUSHI.

The SUSHI Protocol

For each supplier of COUNTER reports, a library must manually connect to the supplier’s website and download the Excel or CSV files. Once retrieval is complete, the librarian is presented with multiple data files from multiple providers, which while standardized, still require significant manipulation and normalization of the data to aggregate reports. Many libraries are creating or purchasing electronic repositories to help them in storing and managing all this data. But the process for transferring the Excel/CSV data into the repository is either manual or requires custom programming.

At a series of library-related meetings in 2004 and 2005, Adam Chandler (Cornell University), Ted Fons (Innovative Interfaces), Tim Jewell (University of Washington), and Oliver Pesch (EBSCO) began a discussion of possible solutions to this issue and came up with the idea of an automated protocol that would transport the COUNTER reports using a machine-processable XML container. They then recruited Bill Hoffman (Swets), Ted Koppel (Ex Libris), and Ivy Anderson (formerly Harvard University, currently California Digital Library) to join their ad hoc group in developing the protocol. (See the list at the end of this article for a complete list of current SUSHI committee members and developers.) In October 2005, the group was formally chartered as a NISO working group.

The SUSHI protocol they developed is a standard client/server web services SOAP (Simple Object Access Protocol) [5] request/response for the XML version of the COUNTER report. A transaction begins when a library or other client sends a SUSHI request that identifies the requesting organization and specifies the parameters of the desired report, such as the date range. The request is transmitted to the relevant content provider’s web server, which authenticates the requester, processes the request, and sends back a SUSHI response that includes the COUNTER XML report. The SUSHI XML response can be easily machine processed like any XML-formatted content.

Prior to developing the protocol, the SUSHI committee created an updated version of the COUNTER XML Schema that is compliant with Release 2.

ERM Integration

There are many options for using the SUSHI protocol response content. Some libraries are creating master spreadsheets or inhouse databases for their usage data. Many of the libraries interested in SUSHI have or are planning to implement a commercial or open source
electronic resource management (ERM) system that will integrate this usage data into their overall management of e-resources.

Two of the library representatives on the SUSHI committee, Adam Chandler and Tim Jewell, are steering group members of the Digital Library Federation’s Electronic Resource Management Initiative (ERMI). Chandler and Jewell see SUSHI as an integral part of phase 2 of ERMI. Phase 1 of the ERMI project “developed common specifications and tools for managing the license agreements, related administrative information, and internal processes associated with collections of licensed electronic resources.” Phase 2 of the project is focusing on data standards, issues related to license expression, and usage data. “We want to see a comprehensive solution to the management of license electronic resources that combines licensing, accurate holdings, orders, and statistics, among other important information from their entire lifecycles.” [6]

Benefits of SUSHI

For content providers, systems vendors, and aggregators, the SUSHI protocol can reduce the amount of interoperability custom coding and could even be used for applications beyond COUNTER. The protocol could, for example, be adapted to work with other XML compliant usage reports. Bill Hoffman indicates that Swets provides ten other reports besides COUNTER and believes with minor tweaking of the protocol they could use SUSHI to deliver all of them.

“There’s definitely a business case for vendors to use SUSHI,” states Ted Koppel of Ex Libris. “If content providers adopt COUNTER for the reporting mechanism and SUSHI for the delivery, they can better satisfy their customers and simultaneously realize cost savings. And best of all, it’s easy to do.”

The demand for use of SUSHI is expected to come from the library customers who will be able to reduce the administrative overhead of acquiring and analyzing Project COUNTER statistics. Chandler points out that “with SUSHI, the client system could be programmed monthly to automatically retrieve the previous month’s reports for all the COUNTER compliant vendors with which the library does business. It’s a powerful tool and it’s just a starting point in what libraries and vendors can do to automate the manual tasks of electronic resource data collection and management, allowing us to focus our time on what’s important: decision making.”

Tim Jewell explains further: “The current University of Washington Libraries handbook of procedures for processing usage statistics is over 80 pages. With good implementation of SUSHI, we estimate we can eliminate 75% of this effort and transfer the staff time to the decision-making process.” Jewell expects to implement SUSHI with the forthcoming version of Innovative’s ERM system in the latter part of 2006. With the new system in place, he envisions having the ability to present usage data by subject areas rather than by publisher, providing each UW subject librarian with the information relevant to his or her specific collection development decisions.

As libraries do more analysis of their usage data, including cost/use studies, content providers who cannot supply usage data in an easily retrievable way risk having their products cancelled in favor of products with proven usage that justify the purchase/license cost. “The effort for libraries to pull in usage from so many sources is growing beyond what many libraries can handle,” asserts Oliver Pesch of EBSCO. “If a content provider doesn’t make it easy to get the data, the library won’t have it when making collection development decisions.” Swet’s Hoffman concurs stating, “Usage statistics are critical to libraries making resource selection decisions and new ERM tools are becoming key to managing electronic resources. If you don’t provide an easy way for libraries to get your usage data, they won’t license your resource.”

Implementations Underway

Ex Libris, Innovative, Swets, and EBSCO have conducted the proof-of-concept integration trials of the SUSHI protocol, successfully transferring the Swets and EBSCO COUNTER data into the Ex Libris and Innovative ERM products.

Innovative demonstrated the use of SUSHI at the University of Nebraska-Lincoln Libraries where COUNTER data was downloaded directly into Innovative’s ERM system. [7] They are also working with the University of Technology, Sydney, and Washington State University as development partners for the SUSHI enhancement. “As we move forward,” says Innovative’s Senior Product Manager, Ted Fons, “we will be able to use this SUSHI-harvested data to create a toolkit of useful collection development tools for electronic resources.” SUSHI integration will become generally available with the 2006 mid-year lease of their ERM product.

Ex Libris has also successfully demonstrated SUSHI integration with their Verde product [8] and will include a SUSHI protocol data collector in Verde version 2.5, to be released late in 2006.

Two SUSHI committee member organizations have developed free toolkits to aid in implementing the protocol on both the client and the server sides. EBSCO created one for the .NET programming environment and Swets created a Java toolkit [9]. Bill Hoffman of Swets Information Services explains that with the toolkits “any library can easily develop a SUSHI client tool to pull the data into their system.”

Thomson Scientific is developing Journal Use Reports, which will combine usage data, publication activity, and citation activity, using data from the Web of Science and Journal Citation Reports as well as COUNTER-compliant
publisher usage reports, to “provide users with a 360° view of how journals are being used at their institution.” [10] Available later in 2006, Journal Use Reports will utilize the SUSHI protocol for the intake of the COUNTER data.

Other organizations committed to implementing the protocol include the College Center for Library Automation (CCLA) from the State of Florida Community Colleges, Cornell University’s Project Euclid, Endeavor Information Systems, Florida Center for Library Automation, HARRASSOWITZ, OCLC, Serials Solutions, and SirsiDynix.

Status and Next Steps

The current version (0.1) of the protocol is a beta test version, which is in the final stages of testing. Minor refinements to the protocol and definitions of error processing are in process. Version 1.0 of the SUSHI protocol will be released as a NISO Draft Standard for Trial Use in the 2nd quarter of 2006.

For ongoing maintenance, NISO has signed a Memorandum of Understanding with Project COUNTER which recognizes the SUSHI working group as the official maintainer of the COUNTER XML schema. This will ensure that the COUNTER XML schema and the SUSHI protocol versions are always in sync. Project COUNTER is planning to include an informational column in its compliance registry to indicate SUSHI implementation.

The SUSHI committee is planning to further test the protocol for handling of all of the Journal and Database reports. Currently, the protocol default is the COUNTER JRI report, but it can easily accommodate all existing Journal and Database Release 2 report types. Following the development of an XML version of the Books and Reference Works, those reports will also be tested.

How to Learn More

A two-part webinar introducing the protocol and its technology is scheduled for May 2006. A third webinar is being developed to educate potential implementers on how to use the Java and .NET toolkits. A face-to-face fall workshop for implementers is in the planning stages.

The committee is encouraging all suppliers of COUNTER reports to learn about SUSHI and consider implementing the protocol. Interested parties should contact the SUSHI co-chairs, Adam Chandler (alc28@cornell.edu) and Oliver Pesch (opesch@ebsco.com). Further information about the committee’s activities, as well as current versions of the schemas discussed in this article, are available on their website (http://www.niso.org/committees/SUSHI/SUSHI_comm.html).

References


See also the ARL statistics interactive webpage at: http://fisher.lib.virginia.edu/arl/


9 Both toolkits are accessible from links on the SUSHI committee webpage: http://www.niso.org/committees/SUSHI/SUSHI_comm.html


SUSHI Committee Members:

Adam Chandler (co-chair), Cornell University
Oliver Pesch (co-chair), EBSCO Information Services
Ivy Anderson, California Digital Library
Patricia Brennan, Thomson Scientific
Ted Fons, Innovative Interfaces, Inc.
Bill Hoffman, Swets Information Services
Tim Jewell, University of Washington
Ted Koppel, Ex Libris

SUSHI Protocol Programmers:

Ben Burbidge, Innovative Interfaces, Inc.
Tony Li, Innovative Interfaces, Inc.
Eitan Schreiber, Ex Libris
Rolf van der Tang, Swets Information Services
Petar Vucetin, EBSCO Information Services
Polaris Library Systems has been supplying automated solutions to libraries for over thirty years, previously with their GALAXY® product line and now with the Polaris® Integrated Library System that was built from the ground up as a completely new 3rd generation system. “Our market niche,” states Bill Schickling, President and CEO, “is U.S. public libraries and we focus solely on the Windows® platform.”

Public libraries utilize a number of third-party products that have to interoperate with their integrated library system. Polaris, recognizing this requirement, works directly with these third-party providers to develop and test product interactions without having to involve their busy library customers. “We try to make it as turnkey as possible,” Schickling explains, “and we never charge the library customer for interoperability testing.”

The key to much of this interoperability is standards. “We take standards seriously,” asserts Candy Zemon, Senior Product Strategist. “They are our first choice for an API.” “Standards are the rock our product is built on,” Schickling concurs, pointing out the long list of supported standards detailed on their website and the company’s commitment to regularly reviewing new standards and integrating them quickly into products. Their company was one of the earliest adopters of the Z39.50 standard and one of the first to provide EDI (electronic data interchange) with acquisition vendors.

Polaris also has a long history of involvement with standards development. Schickling worked on both the SIP and SIP2 standards (the 3M standard interchange protocol for exchanging circulation information) and was one of the original members of the NISO Circulation Interchange Protocol (NCIP) standard that is replacing SIP. Zemon participated on NISO’s Search/Retrieve task group of the Metasearch Initiative, is a member of the NISO/EDItEUR Joint Working Group on Serials, and is currently co-chair of NISO’s Web Services and Practices working group. Other Polaris personnel have participated on NISO’s Library Statistics and Networked Reference committees.

“We’re very committed to NCIP and see a growing demand from public libraries for NCIP compliance,” Zemon maintains. “And NCIP is not just about circulation. We’re finding great applications for NCIP wherever there is a need to exchange and update patron or accounting information between systems.” She cites as examples the interaction with an e-book vendor, where books are “circulated” directly from the vendor’s website, and with the growing utilization of smart cards for payments of fee-based services.

Zemon is also high on Web Services. “We use Web Services internally a lot; it’s how we remotely communicate our software updates for example,” she explains. “I’m intrigued by the low overhead methods of communicating between two systems that are possible with Web Services, which is one of the reasons I’m co-chairing the NISO Web Services and Practices working group.”

Schickling and Zemon see many benefits for their company in being involved in standards development work. Zemon cites the reduced development efforts from having to only write one interface instead of many custom ones and the ability to stay ahead of the development curve by having early knowledge of what’s coming. Schickling feels that Polaris is able to be a voice for the smaller public libraries who rarely have the time or resources to participate in standards development: “During the development of the NCIP standard, we were able to emphasize the need for including direct consortial borrowing, which is very important to public libraries.”

NISO’s standards are not the only ones that Polaris utilizes. They are a Microsoft Certified Solution Provider and Microsoft Independent Software Vendor and must adhere to the rigid programming standards established by Microsoft. This allows them to take advantage of Microsoft development features such as the .NET environment, which is a key component of the Polaris system architecture. The current version of their Polaris ILS also complies with ANSI X12 EDI standards, the Bath Profile, the ISO/IEC Unicode standard, and of course MARC 21. They also support many 3WC Web standards such as HTTP, HTML, XML, and XSL stylesheets.

RFID is one area that Polaris feels is in need of more standards. “The tag standards are volatile and it’s expensive to make a change,” Schickling states. “And there are no standards as yet for RFID interactions for library applications.” The company isn’t waiting for standards, though. Polaris has partnered with Bibliotheca RFID Library Systems to incorporate RFID into their low-cost ExpressCheck™ workstation.

Whether it’s from new standards, customer requests, or internal ideas, expect to see Polaris continually upgrading their product line to add new functionality. As they state in their vision, “An automation vendor should provide not just what you need today but also lead the dialogue on what libraries will need tomorrow.” For more information on Polaris Library Systems, visit their website at www.polarislibrary.com.
RFID Working Group Launched

NISO has formed a Technical Committee to create guidelines that lay out best practices for the use of radio frequency identification (RFID) in library applications. Chaired by Dr. Vinod Chachra, CEO of VTLS Inc., the diverse group is composed of RFID hardware manufacturers, solution providers (software and integration), library RFID users, book jobbers and processors, and related organizations. The NISO Committee’s work is limited to RFID tags used in libraries, that is, tags operating at 13.56 MHz.

The committee is charged with the following deliverables:

- Develop a set of guidelines that lay out current best practices for the use of RFID in library applications.
- Prepare an input document that outlines US practices and concerns to an ISO TC46 working group on an RFID data model for library applications.
- Serve as a sounding board for the NISO representative to the ISO TC 46 working group.
- Continue to work with ALA/BISG working group around the interaction of technology and privacy issues.

“The new RFID standards must help us achieve interoperability within the library industry and application isolation across industries,” explains Dr. Chachra. “First, the interoperability must be at the tag level, so that tags from various suppliers or from different libraries can be used by the RFID hardware in the library. Interoperability must also be achieved at the hardware level, where hardware from different suppliers can work with the tags already in the library books. Second, we must have vertical application isolation among different industries. In other words, we do not want CDs purchased at a store to trigger library security gates and library books to set off alarms at grocery stores. Most importantly, we must achieve these goals while protecting personal privacy.”

The RFID working group evolved from an exploratory group formed after the October 2005 RFID Institute, which was jointly sponsored by NISO and the Center for Digital Knowledge at the University of North Texas-Denton.

Follow the RFID committee’s activities at their webpage: http://www.niso.org_committees/RFID/RFID_comm.html

NISO 2006 Workshops Preview

NISO is planning fall workshops to explore and demonstrate solutions in two critical areas in today’s information environment. Registration will open for both events in the near future and be announced on the NISO website and in the NISO Newsline.

Managing Electronic Collections


Dates: September 28-30, 2006
Location: The Magnolia Hotel, Denver, Colorado

Featuring: best practices, case studies, and interactive sessions. Keynotes, including one on repository architecture by Herbert von de Sompel.

Major Topics:
- Day 1: Understanding users and usage
- Day 2: Practical collection and repository management
- Day 3: Making your collections accessible

Selected Practicums:
- Tutorial on SUSHI (Standardized Usage Statistics Harvesting Initiative)
- Session on designing repository architectures for open access and scalability
- Guidelines on managing licenses electronically

Operational Answers for Librarians and Publishers:
- How can you find out who is using your collections and how?
- How can you make better collection management decisions?
- What can you do to promote access and use of your collections and content?

Discovery to Delivery

A Festival of Ideas and Solutions

Location to be determined; likely in the Research Triangle area of NC
Currently scheduled for the first week in November, 2006 (2 days)

Featuring: Case studies and demonstrations of how specific standards solve specific problems

Special Events:
- A special session with the experts on marketing your library’s metasearch and other new “discovery to delivery” capabilities
- Metasearch “Customer Challenge,” a kind of plugfest, in which vendors meet challenges presented in advance by early registrants.
New Pilot Versions of ONIX for Serials SRN and SPS Available

The NISO/EDItEUR Joint Working Party (JWP) for the Exchange of Serials Subscription Information has announced the availability of updated pilot versions of two ONIX for Serials formats: Serials Release Notification (SRN) and Serials Products and Subscriptions (SPS). These formats join the already-completed Serials Online Holdings (SOH) format. ONIX for Serials is a family of XML formats for communicating information about serial products and subscription information.

The SPS (Serials Products and Subscriptions) defines message formats for transmitting information about serial subscription products. The four messages currently defined are:

- **Product List Unpriced** - A list of subscription products offered by a publisher, subscription agent, online publisher, or content hosting service, without price information.
- **Product List Priced** - A list of subscription products offered by a publisher, subscription agent, online publisher, or content hosting service, including price information.
- **Product Subscription List** - A list of products subscribed to by a particular subscriber or group of subscribers. It may or may not include prices.
- **Product Subscriptions Quote** - A list of subscription products with a price quote offered to a particular subscriber.

The SRN (Serials Release Notification) is a format for communicating information about the publication or electronic availability of one or more serial releases and is designed to support the following types of notification:

- To announce that an item has been published in print or made available online.
- To announce a change in the expected date of an upcoming planned release.
- To give advance notice of a combined release.
- To give provisional notice of an upcoming release.

The SRN and SPS formats are currently at release 0.91, which is a pilot release. On completion of the pilots, and the incorporation of any consequent changes, the JWP will issue a first full release, to be numbered 1.0. An XML schema and a narrative overview for these formats are available from the ONIX for Serials website along with instructions for joining either the information or the implementers listservs. Organizations are encouraged to use the pilot formats and to send comments on the specification and the associated XML schema to EDItEUR (brian@bic.org.uk).

Identifiers Roundtable Cites Areas for Further Work

NISO convened an invitational Identifiers Roundtable on March 13-14, 2006, calling together experts from sectors whose activities intersect and exchange digital resources. The goal was not to solve problems relating to identifiers, but to reach a convergence of ideas around the needs for further work. The tasks that were identified for further NISO action are:

1. Educate decision-makers and technology developers in the community about identifiers and their uses.
2. Create a standard that supports a registry of services that are available for identifiers in the NISO community’s environment.
3. Use the “info” URI registry as a focal point for community identifier needs.

Two NISO Standards Balloted

NISO has balloted two draft standards for approval, a revision to the standard on holdings statements and a new standard on metadata for digital still images.

ANSI/NISO Z39.71-200X, *Holdings Statements for Bibliographic Items*, is a revision of the 1999 version, which was a merger of two standards that separately addressed serials and non-serials. Following its systematic review in 2005, it was decided to issue a maintenance revision to address some comments and make minor corrections. The ballot runs from April 3 to June 1, 2006.

ANSI/NISO Z39.87-200X, *Data Dictionary – Technical Metadata for Digital Still Images* is being balloted jointly with AIIM (as AIIM 20-200X). The standard was previously balloted in 2005; comments received with that ballot indicated changes were required to the standard in order to achieve consensus. Some thirteen new elements were added along with an entirely new section for GPS data. A number of existing elements had changes made to their attributes. The ballot will begin on May 1 and run through June 15, 2006.

The draft standards are available for public review and comment throughout the ballot period and may be accessed from: [http://www.niso.org/standards/balloting.html](http://www.niso.org/standards/balloting.html)
NISO STANDARDS IN PRACTICE

Report on the SRU Meeting and Integration Workshop

by Ray Denenberg, Library of Congress

[Ed. note: SRU is a NISO registered specification.]

The Search/Retrieve via URL (SRU) Implementors group held a meeting March 1-2 in The Hague, Netherlands, hosted by Koninklijke Bibliotheek (KB), the National Library of the Netherlands. The meeting was followed by a one-day workshop, Integration of Services – Integration of Standards.

The March 1-2 SRU meeting was attended by roughly 35 implementors, and led to a number of significant decisions.

Bibliographic Indexes

The lack of bibliographic indexes defined for CQL queries has been a barrier to semantic querying. There is now agreement that a bibliographic index set will be developed. It will be based on MODS semantics.

For example, suppose you want to search within ‘title’. Consider these two queries:

- dc.title=cat
- mods.title=cat

The first indicates Dublin Core semantics for ‘title’ and the second, MODS semantics. There is currently a dc index set (so the first example is valid), however there is no mods set yet. The proposal is to define indexes corresponding to MODS elements. MODS would be used for reference semantics. There is no presumption that the data being queried is MODS.

The proposal to develop a bibliographic set along these lines was well received. It will not, however, be called MODS, because that could lead to a misunderstanding of what the set really is (a perception that it is too closely bound to MODS data). Instead it will be called ‘bib’. Thus in the example above, mods.title would instead be bib.title.

MARC Indexes

Apart from semantic/bibliographic querying, there is a need to search on specific MARC fields, subfields, and substrings. An example query, for illustration, would be:

- marc.245$a=cat

This is intended for users who are familiar and more comfortable with the MARC format and prefer to formulate queries using MARC vocabulary.

Thus a ‘marc’ index set was also approved. This set is not the “usual” CQL index set; it is not intended for the type of abstract, semantic queries that SRU is known for. But it is a trivial set to define, and there seems to be a demand for it.

OpenURL Profile

There was also a proposal to define an OpenURL index set: indexes corresponding to OpenURL keys. An example query might be:

- openurl.aulast=carroll and openurl.aufirst=lewis

Upon receiving an openURL, a resolver may wish to locate the desired item via SRU. With these abstract indexes available, the resolver could formulate the query quite easily using the key values directly from the OpenURL.

But discussion of this set (along with the bibliographic set) led to the conclusion that it would not be as useful as originally thought. It would likely not be widely implemented, and the existence of these indexes would probably cause confusion about their co-existence with the bibliographic index set. Instead, a well-developed mapping from the bibliographic indexes to OpenURL keys would be more useful.

So an OpenURL profile (instead of an OpenURL index set) will be defined, and it will prescribe this mapping. The profile might also provide guidance on how an SRU response can facilitate the client process of formulating an OpenURL.

The profile will address two different scenarios. In one, a resolver receives an OpenURL request and wants to formulate an SRU request. In the other, an SRU client retrieves a record and wants to create an OpenURL.

Elaborating on the second scenario: An SRU client might receive a record and want to create an OpenURL where the object described by that record is to be the referent. The client could then re-request the record for that item,

Standards Australia Joins NISO

Standards Australia, the country’s national standards body, has joined NISO as a voting member. Established in 1922, Standards Australia develops and maintains around 7000 Australian Standards® and related publications which are prepared by over 1500 committees involving more than 8000 committee members. It was one of the first organizations of its type in the world to develop online delivery of technical and business standards and is also Australia’s representative on the International Organization for Standardization [ISO], the International Electrotechnical Commission [IEC], and the Pacific Area Standards Congress [PASC]. Agnes Simai is the primary representative to NISO and Kerry Blinco is the alternate.

For more on Standards Australia, visit their website at: http://www.standards.org.au
this time in the appropriate OpenURL metadata format that could then be used directly as the context object.

**Sort Proposal**

The sorting mechanism in SRU 1.1 is inadequate in several respects and a new sort proposal has been developed and approved.

Sorting is currently part of the protocol proper rather than the query — this is a weakness of CQL — since it does not incorporate sorting it cannot stand alone as a full-function query language. Sorting is specified by an SRU parameter, using Xpath. The Xpath approach has two major disadvantages: it is difficult to parse, and it does not provide a mechanism to express namespaces.

The new approach eliminates the Xpath parameter and adds sort support to CQL. A sort clause (‘sortby’) will be added to a CQL query, for example:

```
title=cat and author=dog sortby author
```

**SRU Bindings and New CQL Name**

SRU via Post is now defined, so SRU has three forms: (1) via URL (as originally), (2) via Post, and (3) over SOAP. The latter is SRW, but that name will be dropped.

CQL, which has been the *Common Query Language*, will now be the *Contextual Query Language*.

**SRU and OpenSearch**

There are clear advantages of SRU over OpenSearch: CQL, schemas, scan, and diagnostics. But OpenSearch has its compelling features — primarily its simplicity and popularity. So it is useful to try to align SRU and OpenSearch.

The proposed strategy is to make OpenSearch requests legitimate SRU requests. Briefly: (1) OpenSearch parameters can use SRU names if properly specified in a configuration file; and (2) OpenSearch ignores parameters it does not understand. Then, an SRU-friendly OpenSearch server can do something intelligent when it gets an SRU-loaded OpenSearch request. And a non-SRU-aware server will process the request normally.

For example, suppose the following three parameters were to occur in an OpenSearch request:

```
query="alice lewis"
x-os-title=alice
x-os-creator=lewis
```

The latter two are (syntactically) legitimate SRU parameters where ‘x-’ indicates an extension. An SRU-friendly OpenSearch server might combine these into a CQL query, for example:

```
title=alice and creator=lewis
```

An ordinary OpenSearch server will ignore the extension parameters and will just process the two search terms.

**OAI Profile**

An OAI over SRU profile will be defined. It will specify server support for three indexes necessary for OAI:

- Identifier
- Last Modification Date
- Collection Identifier

**March 3 Workshop**

Following the SRU meeting KB hosted a workshop: *Integration of Services, Integration of Standards*. The workshop explored how output of one service can be used as input to another, and what extensions to SRU might be useful to facilitate this process. A Workshop report will be published in *D-Lib* and will be announced on the workshop web page: [http://www.loc.gov/standards/sru/march06-meeting/presentations.html](http://www.loc.gov/standards/sru/march06-meeting/presentations.html).

**NCIP Implementors Group Discusses Revision**

*by Steve Wrede, Colorado State Library*

The March 20 and 21, 2006 meeting of the NCIP (NISO Circulation Interchange Protocol) Implementation Group was held at the Sheraton Newton in Newton, MA. The meeting was sponsored by ExLibris (USA), Inc. Guests from the Boston Library Consortium and the College Center for Library Automation joined fifteen representatives of the member organizations.

The Vendor Update portion of the meeting included reports of both active testing and live NCIP implementations. The representatives agreed to complete a status report form which will merged into a single NCIP Status Report and included on the NCIP website.

The Marketing Update portion of the meeting included planning for the presentation to be included at the 2006 LITA forum in October 2006. Possible topics for the presentation are: Ebooks, Bindery, and Circ/ILL.

Some of the topics included in the meeting were:

- Discussions on efforts to streamline NCIP for implementers and on topics to be considered in a version 2 of the NCIP protocol.
- A review of the new design for the NCIP website being developed by the NCIP Maintenance Agency and the Colorado Department of Education.
- A review of proposals for the registration and maintaining schemes for NCIP, along with the needs to add additional medium types.
- Defining a need to create a DCB5 application profile to more clearly define the use of messages in specific vendor implementations.

The next meeting of the NCIP Implementation Group was tentatively set for September 25-27, 2006 in Denver, Colorado.
NDIIPP Project Partners
Review Progress

Since September 2004, the Library’s National Digital Information Infrastructure and Preservation Program (NDIIPP) has been working in partnership with eight consortia nationwide in the collection and preservation of at-risk digital content of cultural and historical importance to the nation.

The third meeting of the NDIIPP project partners, held in Berkeley, California, on Jan. 9-11, was designed to continue the work done during the two previous partner meetings: update the participants on the program and provide them with a forum to inform fellow participants on what they have learned so far and the common issues they face. About 100 people attended—Library of Congress staff, members of the National Digital Strategy Advisory Board, experts in digital preservation and, of course, the preservation partners themselves—from eight consortia comprising 36 institutions.

William LeFurgy, an NDIIPP program manager, spoke about the Library of Congress-National Science Foundation research awards which went to 10 teams to undertake pioneering research to support the long-term management of digital information. LeFurgy told the audience that the teams would report their results this summer, and that “there is the possibility of another round of such awards this year.” The work of the research projects will be integrated with the larger NDIIPP activities. He also reported that as part of its work on an international front, NDIIPP is planning to hold a joint workshop in Washington this year with the Joint Information Systems Committee of the United Kingdom “to compare our initiatives and look at future avenues for collaboration.”

LeFurgy reminded the audience that “we are halfway through NDIIPP,” which began with a public law passed in December 2000. The Library will submit a comprehensive report to Congress in 2010 detailing NDIIPP’s achievements and a strategy for continuing and building upon the work done during the first decade of this century. He mentioned that during 2006, NDIIPP would be seeking more content from commercial owners.

Clay Shirky, an adjunct professor in New York University’s graduate Interactive Telecommunications Program who has done consulting work for NDIIPP, was one of the featured speakers at the meeting. Shirky emphasized that the problems of digital preservation must be approached in layers by various partners with various types of expertise. “There is no way the Library of Congress can solve this problem alone,” he said. Shirky pointed to NDIIPP’s Archive Ingest and Handling Test (AIHT) as an excellent example of how different approaches to the same problem can coexist. AIHT tested the ingest of a large archive into diverse systems. The digital archive was donated by George Mason University, and the Library conducted the test with Johns Hopkins, Harvard, Stanford, and Old Dominion universities.

Eileen Fenton, executive director of Portico, an NDIIPP partner, spoke about their learnings in devising a technical infrastructure to support long-term preservation of e-journals. Fenton pointed out that Portico is facing on a smaller scale some of the same issues as NDIIPP, for example: How to balance the rights and needs of the content owners and those who use it? and, How to pay for the content’s preservation? Initially, according to Fenton, publishers were leery of taking “any steps that would cause them to lose revenue.” Portico has been able to successfully persuade journal publishers that their participation will not reduce their potential revenues and that partnering with Portico will reduce their internal archival work.

Paul Courant, professor of economics and public policy and former provost of the University of Michigan, discussed how to ensure the economic sustainability of a digital preservation program. Courant reminded listeners that any arrangements made for digital preservation “are not simply about money. Value is hard to assess, and there is a conflict of interests for that money. Even before the digital age, libraries were facing acquisitions budget pressures.” He left no doubt that the “economics of digital preservation are expensive,” especially in the case of “storage where we can still find the stuff. The conflict for public libraries is that they have always provided free access, purely for the public good. … So the right price to charge for access to digital materials is nothing—a poor business model, because the cost of producing and preserving a digital collection is not nothing,” Courant admitted.

Clifford Lynch, executive director of the Coalition for Networked Information, spoke on “Making the Case for Digital Preservation.” Lynch told the audience that “we must talk about the notion of acceptable losses” when collecting digital materials. “There is a need to admit that in an engineered system, on a large scale, there is no perfection, just as libraries misplace things occasionally. Does it make sense to spend too much for perfection?”

Lynch spoke of the transformations that will be necessary if libraries and archives are to remain viable and reliable sources of information in the future. “Saving our cultural and intellectual record is not an activity around the margins” of what cultural memory organizations are expected to do. They need to make “calls for basic digital preservation funding and reprioritize their operating budgets.” The Internet has...
helped to produce what Lynch called “a huge, troublesome new class of materials—people as their own publishers. There is a sense of huge confusion for most people outside a very narrow community” regarding the importance of digital preservation. “We need to make clear how the massive [and well publicized] digitization projects of organizations like Google and the Open Content Alliance interrelate” with a need for preserving these and other digital materials.

This article was extracted from the meeting report. Read the entire report at: [http://www.digitalpreservation.gov/partners/project_mtg010906.html](http://www.digitalpreservation.gov/partners/project_mtg010906.html)

**IMLS Publishes Status of Technology and Digitization Study**

The Institute of Museum and Library Services has published *Status of Technology and Digitization*, a follow-up to the 2001 research into the use of technology and digitization at the nation’s museums and libraries. The initial study established baseline data about the kinds of technologies libraries and museums employed and the emerging digitization activities that were beginning to make collections widely available. The second study delves deeper and discovers more about how and why cultural institutions use technology and undertake digitization projects.

According to the study, broadband Internet connections are easing out dial-up/modem connections, even among smaller institutions: large museums (84.9%); small ones (39%); large public libraries (90.4%); small public libraries (67.3%); academic libraries (90.8%); archives (78.6%); and state library administrative agencies: (100%). WiFi wireless networks are also widely implemented, including 23.6% of large museums; 47.1% of large public libraries; 76.5% of large academic libraries; 42.9% of medium-sized archives; and 42.5% of state library administrative agencies.

Digitization activities have also increased among all groups, with archives, state library administrative agencies, and museums leading the way. Ninety-four percent of archives reported some digitization activity over the past 12 months, as did 77% of state library administrative agencies, 74.4% of museums (up from 32% in 2001), 60% of academic libraries, 55% of large public libraries (compared to 25% in 2001), and approximately 18.5% of small and medium public libraries (double the percentage from 2001).

More than three-quarters of state library administrative agencies and archives, the majority of museums and large academic libraries, and one-third of large public libraries that digitized materials make their digital images freely available to the public. However, 64 percent of archives and 51 percent of state library administrative agencies said they have 25,000 or more items still to be digitized. Academic libraries indicate that over 19 percent of their institutions have 25,000 or more items left to digitize. And over 90 percent of museums report still having items to be digitized, with 16.5 percent having more than 25,000 items and 15 percent having 1 to 500 items to digitize.

Lack of sufficient funding and staff time limit the ability of institutions in all groups to implement technologies that will enable them to fully meet their missions. Almost two-thirds of museums, 31 percent of archives, half of large academic libraries, and the majority of small public libraries say their technology is less than adequately funded. More than two-thirds of institutions among all the groups reported that they do not have enough skilled staff to accomplish their technology objectives.

The full IMLS study report is available from: [http://www.imls.gov/publications/TechDig05/index.htm](http://www.imls.gov/publications/TechDig05/index.htm)

**INTERNATIONAL UPDATE**

**ISO TC46 Holds Plenary Meeting in Thailand**

*by Sally McCallum, Library of Congress*

ISO/Technical Committee 46, *Information and Documentation* held their biannual plenary meeting February 6-10 in Chiang Mai Thailand, hosted by the Thailand Industrial Standards. Highlights of the plenary meetings of included:

- new work to be proposed on RFID technologies and a web archive file format;
- completion of a consolidated bibliographic data element data dictionary;

The Danish delegation called for the establishment of new work on RFID. They noted that the technology had begun to mature and implementations were becoming more common, but with an absence of standards that would assist eventual interoperability or migration of...
In order to clear the way for a new initiation of work, the achieve compatibility were investigated, without success. Between meetings, changes that might upward compatible with the current (and implemented) features such as accommodation of Unicode, was not new revision (version 3.0), while adding some attractive implementations new or under development, and the fairly widely implemented, with many of the meeting in Washington, DC. These ILL protocols are encountered with the revised standards at the previous standards at the previous (ISO 10160 service definition and 10161 protocol) were reviewed. The ISO interlibrary loan protocol standards (ISO 10160, Interlibrary Loan Standards, and others) that rights holders could be linked to the objects for access, manage assets and report usage, and linking of manifestations to works which could help to expand cooperation initiative toward this end. Among the use cases that they envisioned are the linking of manifestations to works which could help to expand access, manage assets and report usage, and linking of manifestations and works to rights holders, which would help to determine permissions and collect royalties. This initiative expects to provide links via the metadata that should accompany a standard number. As part of the initiative the agencies are also interested in investigating development of a standard for “parties”, i.e., people, so that rights holders could be linked to the objects for rights and royalty purposes. An article describing this initiative and the prospective uses may be found at http://www.dlib.org/dlib/april06/paskin/04paskin.html

Leadership Transition
NISO turned over the leadership role that it has held for a number of years in TC46, as Secretariat of Subcommittee 4, Technical Interoperability, to Standards New Zealand. Nelson Procter will be the new secretary, and Alison Elliott the new chair. Resolutions were introduced at both the Subcommittee 4 Plenary and the Technical Committee 46 Plenary thanking Patricia Harris (NISO) and Sally McCallum (Library of Congress), for so ably serving in the roles as Secretariat and Chairperson.
respectively. SC4 has responsibility for standardization of protocols, schemas, and related models and metadata for processes used by information organizations and content providers, including libraries, archives, museums, publishers, and other content producers. During NISO’s tenure as secretariat the committee issued such standards as: ISO 15836, The Dublin Core metadata element set; ISO 23950, Information retrieval (Z39.50); ISO 2709, Format for information exchange; ISO 10160, ILL application service definition, and ISO 10161, ILL protocol specification.

COUNTER Releases Code of Practice for Books and Reference Works

Project COUNTER (Counting Online Usage of NeTworked Electronic Resources) has issued the first release of the COUNTER Code of Practice for Books and Reference Works. As with the existing Code of Practice for Journals and Databases, the objective is to enable vendors to provide a reliable set of basic online usage reports. The Books and Reference Works Code of Practice was developed with input from a special task force of librarians and publishers with particular expertise in online books and reference works and made available in draft form on the COUNTER website for comments until the end of 2005. Comments received from librarians, intermediaries and vendors were used to develop the final, definitive version, which became valid on March 1, 2006.

The COUNTER Code of Practice for Books and Reference Works defines six usage reports:

- Number of successful title requests by month and title
- Number of successful section requests by month and title
- Turnaways by month and title
- Turnaways by month and service
- Total searches and sessions by month and title
- Total searches and sessions by month and service

The Code specifies: the data elements to be measured; definitions of these data elements; usage report content, format, frequency and methods of delivery; and protocols for combining usage reports from direct use and from use via intermediaries. It also provides guidelines for data processing by vendors and auditing protocols. The format and structure follow, as far as possible, that of the existing Code of Practice for Journals and Databases.

A register of compliant vendors will be maintained on the COUNTER website. A number of e-book publishers are already developing compliant reports.


To help ensure long-term access to electronic journals, the Library of Congress and the British Library have agreed to support the migration of electronic content to the U.S. National Library of Medicine (NLM) Journal Archiving and Interchange Document Type Definition (DTD) standard, where practicable. The libraries hope that their advocacy of migration to this standard will help ensure long-term access to electronic journal content.

In the world of e-journals, many publishers and authors are already using or plan to use this standard, from the NLM. The advantage of using this standard is that it defines the way in which electronic journals should be structured and creates a uniform, well-defined and easily accessible information resource.

Access in perpetuity to information sources is a key mission of major libraries. This long-term access is necessary for both print and electronic materials. In the print world, cataloging standards are well established. However, for digital materials, these standards are still evolving. By converging on a particular standard, in this case the NLM DTD, content distributors are helping to ensure long-term preservation and access to their materials.

The Library of Congress expects to use the standard as part of the National Digital Information Infrastructure and Preservation Program (NDIIPP). Laura E. Campbell, associate librarian for Strategic Initiatives and project lead of the NDIIPP, stated, “Although a significant effort will be required to migrate e-journals to this standard, by moving forward now, we will alleviate the potentially bigger problems caused by the use of incompatible standards in the future.”

Richard Boulderstone, director of E-strategy and Programs at the British Library, said, “We acknowledge considerable work that has to be undertaken by publishers to make the transition to a new structure for their electronic journal content. However, by supporting a common structure for their e-journal content, we have established a shared international context in which such migration can now proceed.”

The NLM standard is available from: http://dtd.nlm.nih.gov/
Journal Supply Chain Institutional Identifier Project

The British Library, HighWire Press, Ringgold Inc., Swets Information Services, and a group of HighWire-affiliated publishers announced the launch of an initiative to explore the creation, prototype implementation, and value of a common institutional identifier that can be used throughout the entire industry, from purchaser to end user.

The start of every calendar year is a turbulent time for all parties involved with the journal supply chain, with missing issues, lost access to electronic journals, and problems relating to the setting up of initial access. Many of these problems occur because of communication breakdowns somewhere along that chain. Although each company or organization involved has its own way of recognizing customers, users, clients, and subscriptions, one of the aims of this project is that, in the creation and utilization of a standard institutional identifier, these problems will be eliminated, mitigated or at the very least diagnosed earlier.

The project will set up real-use case scenarios to discover whether or not the creation of such a standard identifier for institutions will be beneficial to all parties involved and will test implementation strategies. The pilot will run through December 31, 2006 and be limited to the UK customers of all the participants. The British Library will be working with the pilot to look at the implications of providing access to electronic archives.

Quick Reference Unicode Guide

The Unicode Consortium has developed a quick reference to the main principles of the Unicode Standard that provides an authoritative but lightweight introduction and overview. The 6-page laminated guide includes information on: unicode and text, unicode codespace, key gotchas, unicode in practice, data as text and text as data, unicode code chart sample, text segmentation, text comparison, text transformations, chinese characters, text encoding conversions, text rendering, character properties, from characters to bytes, byte order mark, utf-32, utf-16, and utf-8.


MAKING THE MOST OF STANDARDS

ConsortiumInfo.org: a Portal for Standards Information

One of the best sources on the Internet for keeping up with standards-related information is ConsortiumInfo.org. The site is hosted by Gesmer Updegrove LLP, a technology law firm based in Boston, and edited by Andrew Updegrove, an internationally recognized expert on standard setting and open source organizations.

Are you new to standards setting and want to learn more? Then check out The Essential Guide to Standards Setting and Consortia (www.consortiuminfo.org/essentialguide/). Need help in justifying your organization’s time and money in joining a standards development organization? Maximizing the Value of Consortium Participation (www.consortiuminfo.org/maximizing/) can help. The MetaLibrary contains abstracts of and links to articles all over the Internet related to standards and standards setting. The Consortium and Standards List includes descriptions and links for over 450 standards developing organizations. A News section and a Standards Blog provide the latest information on development in the standards world and both areas offer an RSS feature. Or you can subscribe to the free monthly e-newsletter, Consortium Standards Bulletin.

The site is especially useful in its coverage of developments in the open source community, which tends not to have the kind of PR and marketing of the more commercial standards arena.

The site has as its goal “to be the most comprehensive source of information on the Internet regarding standards, standard setting, and open source software, and on the role that these essential tools play in business and society.” Check for yourself and you’ll probably agree that it has succeeded.

Follow the project activities at their website: http://www.journalsupplychain.com/
In Development

Listed below are the NISO working groups that are currently developing new or revised standards, recommended practices, or reports. Refer to the NISO website (www.niso.org/committees/) for links to each group’s webpage, which contains a member list, minutes, and working documents.

STANDARDS STATUS: APRIL 1, 2006

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<td>Web Services and Practices</td>
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<td>Co-Chairs: Candy Zemon, Ian Davis</td>
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At Ballot

The following standards are currently being balloted for approval by NISO voting members. The draft standards are available for public review and comment on the NISO website (www.niso.org/standards/balloting.html).

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<td>NISO Z39.71 – 200X, Holdings Statements for Bibliographic Items</td>
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LEARNING LINKS

Community Dimensions of Learning Object Repositories
by Dr. Anoush Margaryan and Professor Allison Littlejohn. D-Lib Magazine, 12 (3), March 2006.
Describes the Community Dimensions of Learning Object Repositories (CD-LOR) project to identify key barriers and enablers to the implementation of Learning Object Repositories.
http://www.dlib.org/dlib/march06/03inbrief.html#LITTLEJOHN

Decision Tree for Selection of Digital Materials for Long-term Retention
An interactive decision tree that steps users through various decisions points that will need to be incorporated into a digital materials selection policy.
http://www.dpconline.org/graphics/handbook/dec-tree.html

Digital Repositories in UK Universities and Colleges
Discusses the UK Joint Information Systems Committee (JISC) digital repository projects in the areas of academic research, e-learning, and multimedia. Provides links to relevant standards.
http://www.freepint.com/issues/160206.htm#feature

Does the Arxiv Lead to Higher Citations and Reduced Publisher Downloads for Mathematics Articles?
Discusses the usage of articles in an open access institutional repository and the findings of a study to determine the reason for increased citation levels of deposited articles.
http://arxiv.org/abs/cs/0603056

“Marketing” with Metadata: How Metadata Can Increase Exposure and Visibility of Online Content
by M. Moffat. PerX project, Version 1.0 8th March 2006.
Discusses the benefits of exposing metadata and adopting a standardized approach. Explains how metadata can be exposed through harvesting, distributed searching, and syndication. Provides case studies for each method.
http://www.icbl.hw.ac.uk/perx/advocacy/exposingmetadata.htm

Metasearch: Building a Shared, Metadata-driven Knowledge Base System
Describes a metadata-driven open source metasearch service developed by Oregon State University that allows using libraries to easily customize the resources accessed by the metasearch.
http://www.ariadne.ac.uk/issue47/reese/

Reports results of a UK survey to determine rights and rewards motivations for depositing teaching and learning materials in an institutional repository.
http://rightsandrewards.lboro.ac.uk/files/resourcesmodule/@random43cb8b0d0ad/1137423150_SurveyReport.pdf

The Myths and Realities of SFX in Academic Libraries
Reports on the results of a three-fold study—online survey, focus group interviews, and sample testing analysis— to examine library end-user and librarian expectations and experiences using SFX.
http://www.sciencedirect.com/science/journal/00991333

Universal Authentication
Discusses the need for a universal authentication system and how the Shibboleth project led by Scott Cantor is working to address that need.
http://www.technologyreview.com/read_article.aspx?id=16474

CALENDAR

June 2006
NISO sessions at the ALA Annual Conference in New Orleans
June 23 NISO AVIAC Meeting (4:00 to 5:00 pm)
June 25 NISO Standards Roundup Meeting (4:00 to 6:00 pm)

September 2006
September 12-13 NISO Board of Directors Meeting
Washington, DC
September 27-29 Managing Electronic Collections
a NISO Workshop
Denver, CO

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