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Don't Wait, Automate! Industry Perspectives on KBART Holdings Automation

Andrée J. Rathemacher
University of Rhode Island, andree@uri.edu

Matthew Ragucci

Stephanie Doellinger

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Andrée Rathemacher
Presenter

Matthew Ragucci
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Stephanie Doellinger
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When trying to manage their e-resources, librarians spend a significant amount of time adjusting their holdings in vendor knowledgebases to make sure that the content their library can access is selected properly. This is often a tedious process, which, extrapolated out to each content provider, can be a drain on library resources. A National Information Standards Organization (NISO) recommended practice provides a solution to this problem by facilitating the automatic transfer and retrieval of library-specific Knowledge Bases and Related Tools (KBART) holdings data between content providers and knowledgebases. In this presentation, Matthew Ragucci of Wiley presents a publisher's perspective on the work required to implement KBART Automation: Automated Retrieval of Customer Electronic Holdings, Andrée Rathemacher of the University of Rhode Island shares a librarian's opinion on the benefits and potential pitfalls of KBART Automation, and Stephanie Doellinger of OCLC addresses the topic from a knowledgebase supplier's point of view.

KEYWORDS Knowledge Bases and Related Tools (KBART); KBART automation; national information standards organization (NISO)

BODY OF PAPER

Introduction and background

In 2017, The National Information Standards Organization (NISO) created a Knowledge Bases and Related Tools (KBART) Automation Working Group. The group drafted a

recommended practice, *KBART Automation: Automated Retrieval of Customer Electronic Holdings* (RP-26-2019), which was published on June 18, 2019. A companion to *KBART: Knowledge Bases and Related Tools Recommended Practice* (RP-9-2014), KBART Automation supports the automatic transfer and retrieval of library-specific KBART-formatted holdings reports between content providers and knowledgebases via an Application Programming Interfaces (API).

It is important to clarify that KBART and KBART Automation are two separate, but related, recommended practices, and the KBART Automation Working Group is different from the KBART Standing Committee. Currently, the KBART Standing Committee, which oversees the KBART recommended practice, is working on a Phase III of KBART. KBART Automation, being relatively new, is still in Phase I. Future developments of KBART Automation is likely, but not until after KBART Phase III is released. This paper focuses on KBART Automation.

As noted above, the purpose of KBART Automation was to create best practices around the "timely exchange of accurate, library-specific KBART-formatted holdings reports between content providers' access control systems and knowledgebases, allowing knowledgebase-powered systems to more accurately reflect content accessible at a particular institution and its unique holdings, with little interaction or ongoing maintenance from library staff."[1] KBART Automation, like KBART, only covers e-books and e-journals. When implemented well, KBART Automation results in more accurate holdings information for a library than what would be possible when holdings information is managed in the library's knowledgebase manually. For publishers, KBART Automation improves customer satisfaction, since librarians will spend less time managing their knowledgebases and troubleshooting user complaints that result from inaccurate holdings information. For knowledgebase vendors, KBART Automation creates a

common set of practices and expectations for all publishers who wish to implement holdings automation with the vendor, avoiding the need for the vendor to redevelop automation procedures for each content provider individually.

A work plan for future developments to KBART Automation has not yet been formulated, but future iterations of the recommended practice might include improved handling of serial name changes; an indication of the titles for which a library has perpetual access rights; consortia-specific holdings reports; a distinction between paid and Open Access content; and the tracking of library entitlements at the collection level, not just the title level. Some of these developments will depend on the changes made to the KBART recommended practice in Phase III.

Wiley and KBART Automation, a publisher perspective

Wiley has made KBART-formatted files available for about ten years for content available on its Wiley Online Library platform. These KBART files populate knowledgebases, which, depending on how libraries have configured those knowledgebases, provide holdings information to institutional tools such as catalogs, discovery layers, title A-Z lists, and link resolvers that help libraries manage discovery and access to their licensed e-resources. Wiley has long recognized the importance of providing accurate and timely metadata to knowledgebases so that librarians will be able to select their libraries' licensed content as subscriptions change, new content becomes available, and older content is removed. The publisher's system-generated KBART files are updated monthly. Individual KBART files correspond to the company's e-book and e-journal sales packages, which are broken down by content type (journals, books, archives), by subject, by front file versus back file, by year, and by acquisition method (e.g., outright purchase, evidence-based acquisition).

Wiley's KBART files used to be hosted on a firewalled FTP site available only to knowledgebase vendors, but in 2019, in the interest of transparency and accountability around the company's KBART practices, they were moved to a publicly accessible web page on Wiley Online Library.[2] The Web page provides KBART files for all the publisher's packages, a monthly list of files that were updated, and a "KBART Naming Guide" that translates Wiley's package names into the collection names that appear in vendor knowledgebases. A list of transfer titles communicates journals acquired by Wiley, new launch journals, and journal titles no longer published by Wiley. Knowledgebase vendors harvest KBART files from this Web page to update their systems.

Maintaining accurate KBART files is resource-intensive and time-consuming for Wiley because of the hundreds of sales packages available, each one with its own KBART file. Despite the publisher's efforts to provide current KBART files, updated monthly, knowledgebase vendors do not always load the files into their knowledgebase in a timely manner. For example, it can happen that the KBART file for a given collection is updated in January and made available on Wiley's KBART Web page, but the changes will not be reflected in a vendor's knowledgebase until June. Wiley is not able to see into all vendor knowledgebases, so the publisher relies on librarians to report issues to them or to the knowledgebase vendor.

For libraries that purchase e-journals and e-books in standard sales packages, this workflow works well, since Wiley's efforts to create a KBART file that corresponds to each saleable package ensures that librarians can select in their knowledgebase the packages they have licensed. However, many libraries are unbundling their journal packages and are purchasing e-books à la carte. These libraries must select their holdings in the knowledgebase on a title-by-title level. In some cases, for larger consortium customers, Wiley would create customized

KBART files for the consortium's holdings, but, given that KBART files are not meant to be static and need to be updated regularly, this practice was not sustainable at scale.

A couple of developments put Wiley on the path to KBART Automation. The first was the publication of the KBART Automation recommended practice in 2019, which provided standardized protocols for communicating library-specific holdings information to knowledgebase vendors, avoiding the need for publishers to develop a customized procedure with each knowledgebase vendor. Another was a development within the Wiley Online Library platform in early 2020 that allowed for the generation of institution-specific KBART files. After these developments, Wiley collaborated with Atypon (the host of its platform, Wiley Online Library) to enhance this functionality, while at the same time working with the knowledgebase vendors OCLC and Ex Libris to test the automated transfer of institution-specific KBART files and to make sure Wiley was included in the knowledgebase vendors' development roadmaps.

Wiley's implementation of KBART Automation with OCLC and Ex Libris has taken longer than expected, as it became clear that additional work was required to make automated holdings transfer a success. At the most basic level, it was necessary to design the user experience for librarians and provide clear instructions on how to set up KBART Automation for Wiley content on the library end. In addition, Atypon had questions on correct interpretations of the KBART and KBART Automation recommended practices, and Wiley provided guidance and worked with library partners to validate their work. Of the various issues that needed to be corrected, Wiley prioritized the resolution of problems that had to be resolved for KBART Automation to be enabled. One essential component was the ability for Wiley to generate a global A-Z list of all titles, which is required for KBART Automation, and to integrate the process for creating that list with their practice of generating KBART files that correspond to

sales packages. Another issue was ensuring the accuracy of institutional holdings, including making sure that titles libraries acquire through consortia were included in the institution-specific KBART files. At first, the KBART files generated by Atypon contained end dates for all serial titles, even for libraries' current subscriptions, and those had to be removed except in cases when the title had ceased or changed names.

The KBART Automation recommended practice calls for the institution-specific KBART file to provide "a 'snapshot' of an institution's holdings at a given time, including content an institution is entitled to access contractually as well as content that may be accessible for other reasons (e.g. open access)."[3] Wiley had to work to get Open Access titles included in the KBART files. A special challenge was including titles that had flipped to Open Access, where access to older content was restricted but newer content was open. The publisher took time to identify and clean up duplicate ISSNs and DOIs and to ensure that diacritics in titles displayed correctly. Finally, holdings for Cochrane Library, which is sold by Wiley but not hosted on the Wiley Online Library platform, needed to be condensed and integrated into the global A-Z title list.

Once KBART Automation for Wiley content is formally released by OCLC and Ex Libris, libraries can enable weekly automated holdings feeds by retrieving a vendor-specific API token from the administrative dashboard in Wiley Online Library and depositing it with their knowledgebase vendor. The vendor's system will retrieve the institution-specific KBART file via an API and will map the library's holdings against Wiley's global A-Z titles list. From that point on, librarians will no longer have to manually manage their e-journal and e-book entitlements in the vendor's knowledgebase, whether at the package or the title-by-title level.

Libraries using OCLC's WorldShare Collection Manager will benefit from full OCLC records for their e-book and online reference book purchases.

Wiley is still completing necessary work and engaging in testing with OCLC and Ex Libris, with a planned rollout of KBART Automation with these vendors in Fall 2021. At that time there will be broad communication to the library community, with the hope that there will be broad adoption. After implementation, Wiley is looking toward improving the service by ensuring that every journal's complete title history is captured and made visible in their KBART files. They also intend to communicate post-cancellation rights for journals and perpetual access for e-books to clarify which titles a library owns in perpetuity. Another goal of the publisher is to update the global A-Z title list more frequently; currently the institution-specific KBART files are updated weekly but the global titles list is updated monthly, which could cause a delay in new titles being activated in the knowledgebase.

Wiley is the first publisher hosted by Atypon to implement KBART Automation, and they hope that the work they have done will pave the way for other publishers using Atypon's Literatum to offer the service. Wiley hopes to build trust with librarians regarding the quality of their KBART files, being transparent about what they contain and what they do not contain, with a promise to work to continually improve the service and offer it through additional knowledgebase vendors in the future. The goal is wide adoption by libraries of KBART Automation.

KBART Automation at the University of Rhode Island, a librarian perspective

The University of Rhode Island (URI), a public land-grant university with approximately 16,000 full-time equivalent students and a materials budget of over five million dollars, is an enthusiastic adopter of KBART Automation, having implemented it whenever available in their

Ex Libris Alma library management system and in OCLC's WorldShare Collection Manager. Workflow automation is especially welcome at the URI Libraries, as there are only two professional librarians and four support staff assigned to the technical services functions of acquisitions, cataloging, licensing, and e-resource management.

When a library sets up KBART Automation for a publisher, the publisher creates customized KBART-formatted files listing all the content the library can access at the time the file was created. This includes licensed content as well as content that is free, such Open Access content or content that is temporarily free due to a trial or promotion. Publishers usually create one KBART-file for the library's e-journal holdings and another file for e-books. The library's knowledgebase vendors reach out via an API, typically weekly, and retrieve the customized KBART files, using them to update the library's holdings in the knowledgebase automatically.

Currently, the only knowledgebase vendors offering KBART Automation are Ex Libris and OCLC, and the participating publishers that have implemented the service are Elsevier (journals and books), Springer Nature (journals and books), Taylor & Francis (books), and Wolters Kluwer/OVID (journals and books). Wiley is nearing implementation with both Ex Libris and OCLC. Both knowledgebase vendors have additional automated holdings feeds available, but it is these publishers who have implemented KBART Automation in accordance with the NISO recommended practice. Supported publishers and setup instructions are available at each of the vendors' websites.[4]

The first step for a library to set up KBART Automation is to reach out to the publisher to request the service, at which point the publisher provides a token or other access credential. Next, the library selects the appropriate collection within their knowledgebase, to which their holdings will be mapped. The knowledgebase vendor will provide this information. There are

typically separate collections for e-journals and e-books, for example, "Elsevier ScienceDirect Journals Complete" and "SpringerLink Books – AutoHoldings." Ex Libris customers will follow the provided instructions for configuring the KBART Automation service within the system, while OCLC customers will contact customer support to request the service. Once the service is active for that publisher, the library's holdings will be updated weekly, monthly, or on demand, depending on the knowledgebase.

KBART Automation helps with many aspects of electronic resource management. It makes routine e-journal management easier by automatically activating new titles in the case of new subscriptions or when titles change. If a journal title is canceled, the holdings in the knowledgebase will be adjusted to reflect the library's perpetual access holdings. This can be especially helpful when unbundling large journal packages. If a library's journal holdings do not match the publisher's default years of availability in the knowledgebase, KBART Automation will ensure that the years selected are customized for the library.

Any custom purchase can be managed effortlessly with KBART Automation. For example, sometimes e-journal or e-book packages acquired through a consortium do not match standard publisher offerings. With KBART Automation, the library's holdings will be accurate without the need to adjust the knowledgebase title-by-title. Similarly, KBART Automation will add newly published titles to an evidence-based acquisition (EBA) program, and special handling is not required for titles that have been selected for purchase, since they remain in the holdings feed.

Journal backfile purchases also benefit from KBART Automation. Often, a library will buy a backfile package but will not add titles newly acquired by the publisher in subsequent years, which can result in the need to select holdings on a title-by-title basis if the publisher does

not create separate KBART files for annual additions to their journal backfile collection. With KBART Automation, only the backfile content that the library has purchased will be activated in the knowledgebase. For e-book standing orders, new titles will be activated automatically; there is no need to watch for them.

Libraries that use a library management system other than OCLC WorldShare but wish to keep their holdings current in OCLC will benefit from KBART Automation, especially as it becomes more widely adopted, as it will help lessen the work involved in maintaining more than one knowledgebase. Open Access content is also included in an institution's KBART file, making it unnecessary to separately select a publisher's Open Access collections. For publishers that update their collections annually, librarians often must wait a couple of months for the new year's collection to become available for selection in their knowledgebase, for example, "Wiley Online Library Database Model 2021." With KBART Automation, any changed holdings in the new package are included in the institution-specific KBART file and therefore are updated in the knowledgebase in the weekly or monthly load.

The customization of KBART Automation and the frequency of updates benefit both librarian and library users. Librarians spend less time on tedious e-resource holdings management, leaving more time for higher level work such as collection analysis, product selection, and professional development. Library users benefit from more accurate holdings in library discovery systems, which result in fewer access problems and less frustration for patrons and librarians alike.

Despite the many benefits of KBART Automation, it is not without its problems. Libraries using KBART Automation for their e-book collections will be relying on MARC records from their knowledgebase vendor rather than local MARC records. If a significant

number of MARC records in the designated knowledgebase collection for KBART Automation do not meet the library's standards, KBART Automation might not be the best choice for that publisher.

Currently, KBART Automation provides library holdings at the title level; it does not indicate whether the library purchased a title as part of a package. Because KBART Automation activates all e-journal and all e-book holdings from a given publisher using one global A-Z title list, it is difficult to connect individual payments to particular subsets of content. For example, at URI, all Elsevier journal content is represented in a single collection, "Elsevier ScienceDirect Journals Complete." This includes individually subscribed titles, current package titles, and multiple backfile purchases. Attached to this collection are multiple payment records.

If a library activates KBART Automation for journals and books from a single publisher, duplicate records may be activated for the same content in the case of book series and conference proceedings. For example, URI subscribes to the book series *Fish Physiology*, published by Elsevier. KBART Automation activates a serial MARC record for the title and a holdings statement indicating that we have access to the content from 1969 to present. KBART Automation also activates MARC records for individual e-books in the series, for example *Primitive Fishes*, published in 2007.

Another potential problem is coverage gaps in serials holdings statements that are too granular. This is a function of KBART, not KBART Automation, but some publishers choose to create a new line in the KBART file whenever there is a gap in a library's access of even one issue of a journal. This results in more accurate OpenURL linking but holdings information that may be confusing to library users. In addition, any customizations a librarian makes to a holdings

statement in a knowledgebase collection managed by KBART Automation will be overwritten with the next upload.

Librarians who implement KBART Automation are choosing to rely on holdings data from publisher systems, and they need to trust that this data is accurate and that all the content to which their library has access is included in the file. Unfortunately, publisher holdings data are not always accurate. If a library manages knowledgebase holdings manually and a publisher turns off access to a title in error, the mistake is likely to be discovered when a library user or staff member clicks on the title and discovers that access is not working. With KBART Automation, the inactive title simply disappears from the library's holdings, and the error may never be discovered.

Despite these caveats, for most libraries the savings in staff time and the increase in accuracy of holdings in library e-resource management and discovery systems make KBART Automation an exciting development, one which is well worth more publishers and knowledgebase vendors adopting.

OCLC and KBART Automation, a vendor perspective

OCLC first implemented automated holdings feeds for libraries in 2011 to support new library purchasing models such as Demand Driven Acquisitions (DDA) and, later, Evidence Based Acquisitions (EBA). Automation saved staff time in libraries and resulted in holdings that were more accurate and updated more quickly than would be possible through manual updates of the knowledgebase. It also helped libraries keep track of which DDA and EBA titles were purchased. Today, OCLC supports automated holdings feeds for several content providers, primarily for e-book holdings. For the publishers that follow the KBART Automation

Recommended Practice—Elsevier, OVID, and Springer Nature—the holdings also include e-journals.

The advantage to following KBART Automation when implementing holdings feeds is that OCLC does not have to develop customized automation procedures for each content provider. While setting up library-specific automated holdings feeds with a content provider is still a significant project, KBART Automation reduces the size of the project. The fact that KBART Automation relies on APIs to transmit files is also a benefit. With APIs, holdings files can be retrieved at any time, which provides flexibility to OCLC around when they load files and allows for easy reloading of files if problems are detected. As with all automated holdings feeds, OCLC also benefits by getting fewer support questions from libraries about inaccurate holdings.

There are a number of questions OCLC regularly receives about automated holdings. The most common are: 1) Where are historical titles (pre-name changes); 2) How do libraries know which titles are perpetual access; 3) Will KBART Automation select the collections a library has purchased; and 4) Can a library have two holdings feeds, one for library purchases and one for consortia purchases? Right now, the KBART Automation Recommended Practice does not specifically address these questions. KBART Automation holdings files include title-level holdings of everything a library has access to at the point of time the holdings file was generated. There is no indication of perpetual access, collection-level entitlements, or differentiation between library and consortium purchases. It is possible that this could change in Phase II of KBART Automation.

OCLC's primary goal when implementing KBART Automation with a publisher is to improve the accuracy of libraries' holdings. Before OCLC will begin a conversation with a publisher about automated holdings, the publisher must have good quality global KBART files

that are updated consistently, preferably weekly or even more often, since feeds that are updated infrequently defeat the purpose of automation. API delivery, per the KBART Automation Recommended Practice, is also required, as being able to pull a file on demand through an API improves the speed and accuracy of holdings updates. Furthermore, library holdings must be correct. OCLC tests holdings files for accuracy with partner libraries before implementation. This is essential for trust with libraries, because if automated holdings are inaccurate, libraries will not use them and the time and resources spent by both the publisher and OCLC to build automated feeds is wasted. OCLC is currently following this process with Wiley before their automated holdings feeds are launched. The average time from when OCLC begins conversations with a publisher about KBART Automation to implementation is about one to one and a half years.

In conclusion, while KBART Automation requires time and a high degree of cooperation between publishers and knowledgebase suppliers to implement, it benefits libraries. The wide adoption of KBART Automation will reduce the effort required to maintain e-resource holdings in library systems. It will also result in more timely and accurate holdings information, improving the experience of library users.

NOTES

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CONTRIBUTOR NOTES

Andrée Rathemacher is Professor Librarian at the University of Rhode Island, Kingston, Rhode Island.

Matthew Ragucci is Associate Director of Product Marketing, Wiley, Hoboken, New Jersey.

Stephanie Doellinger is Senior Metadata Operations Manager CI & KB, OCLC, Inc., Dublin, Ohio.