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Access to Serials: Integrating SFX with Evergreen Open Source ILS

Abstract

Purpose – This paper addresses the integration of SFX link resolver with Evergreen open source integrated library system (ILS). It also describes a method to incorporate print serials into SFX.

Design/methodology/approach – A print serials project has been proposed and implemented to integrate print and electronic serials at University of Windsor Leddy Library. It contains two sub-projects: (1) to incorporate all forms of serials in SFX; (2) to integrate SFX with the Evergreen library catalogue for serials access. Various issues associated with print serials and open source software were also investigated.

Findings – A unified view of print and electronic serials is desired and well received by librarians and patrons. There is no technical difficulty uploading print serials data into SFX, but the process can be time-consuming and challenging. Open source software is flexible in terms of customization and interoperability with other library systems though it presents challenges to system staff.

Originality/value – This paper has the following contributions: (1) it is the first work on the integration of Evergreen open source ILS and the proprietary link resolver, SFX, in literature. The issues encountered and their solutions presented in this paper may be applicable to the integration of open source ILSs, such as Evergreen and Koha, with link resolvers or other library systems; (2) the method described in this paper to facilitate users to access to all forms of serials may be useful for other institutions having SFX or other link resolver systems.

Keywords Print serials, SFX, Link resolvers, Evergreen open source ILS, Open source software, Conifer project

Paper type Case study

1. Introduction

Serials are an important component in academic library collection. Since the development of serials production from the 1800s, serials have been available in a variety of forms, including paper, microform, disk, electronic, etc. (Nisonger, 1998) Many libraries now have serials collection with multiple formats. It has been difficult for libraries to provide access to their entire range of serials resources.

The library catalogue is an integral part in today's integrated library system (ILS). It has been a primary tool for users to search and locate physical materials at a library for several decades (Borgman, 1996). However, it is clear that the traditional print-based ILS is unsuitable for the ever-growing electronic resources. In the late 1990s, the first link resolver, SFX, was implemented under the OpenURL framework. Since then, link resolvers have been an essential tool for libraries to offer links to electronic journal articles and other library resources (Van de Sompel and Beit-Arie, 2001). Many libraries manage their electronic resources in link resolvers while the print collection in library catalogues. Users may have to take extra steps to find information in both forms.

In the meantime, libraries are showing a growing interest in open source software solutions due to dissatisfaction with proprietary library systems and the restriction of budget. Various types of open source library systems have been developed and adopted, including Koha ILS, Evergreen ILS, CUFTS link resolver, Electronic Reserves, LibraryFind federated search tool (Wrosch, 2007), Blacklight library catalogue (Sadler,

2009), VuFind library resource portal (Villanova University Falvey Memorial Library, 2010), etc. How to integrate a variety of open source software with proprietary library systems becomes another challenge in the library world.

University of Windsor Leddy Library went live with the Conifer system, an implementation of Evergreen open source ILS with other three university partners in May 2009. Prior to this project, the library maintained print serials in its legacy ILS, Voyager, while electronic journals in SFX. There was no single access interface for users to search for both print and electronic journals. Because Evergreen did not contain a serials module at that time, a print serials project was conducted to upload and maintain all forms of serials collection in SFX and further to integrate SFX with the Evergreen library catalogue. This project also provides users a unified view for multiple formats of serials collection in the SFX menu. Users can start searches from the library catalogue, Google Scholar, Journal A-Z list or other library search interfaces or databases to get the SFX menu for journals available at the library. The method proposed to integrate print and electronic serials may be applicable to other institutions having SFX or other link resolver systems. Furthermore, this paper is the first work on the integration of Evergreen open source ILS with the proprietary link resolver, SFX, in literature. The implementation experience and various issues addressed in the project would have implications for libraries adopting open source software.

2. Literature Review

A review of literature revealed that many approaches and practices have been presented to provide integrated access to multiple forms of serials, but no article addressed the integration of open source ILS with a proprietary link resolver.

Walker (2005) proposed four different approaches to integrating local print holding information into SFX. The first approach is to upload all ISSNs existed in the catalogue to SFX. In this way, SFX would know the availability of a journal and display the link to the catalogue accordingly. The second is to provide access to a library's print collection via Z39.50 Lookup feature in SFX. In this approach, SFX will query the catalogue to see whether or not a catalogue link should be displayed in the SFX menu. The problem with the first two approaches is that SFX only checks the local holding availability at the journal title level. Users would have to check the library catalogue to see if a specific volume or issue is available in print collection. Walker (2005) further proposed a third approach to bring links at the issue level. Similar to the first approach, ISSNs and holding statements are converted and uploaded into SFX. The link to the catalogue is displayed only when the specific issue is available in local holdings. However, it can be a burden for libraries to maintain serials holdings in both SFX and the library catalogue. The last approach was proposed in order to solve the maintenance issue associated with the third one. It utilizes Z39.50 plug-in feature in SFX to query the catalogue not only ISSN, but also holding information to determine if the library owns the requested issue. This method requires little maintenance of holdings in SFX. However, libraries may need to clean up and standardize the holding statements in the catalogue before they are able to adopt this approach. Walker (2005) discussed the benefits and drawbacks of all four approaches. However, the author did not address practical issues or challenges a library may encounter during the implementation of these approaches in various library environments. In addition, the approaches were only applicable to journals that have ISSNs. There were no discussions on how to deal with journals without ISSNs.

Murphy Library at University of Wisconsin-La Crosse established a searchable interface to its print and electronic periodical holding data (Holman, 2005). The paper presented the migration process of all periodical holding information from the library's home-grown system to SFX. The main drawback of this project is that users still need to go through the library catalogue to find out exact holdings, locations and other related information to access a specific journal title. Hogarth (2005) described a project incorporating print and microfilm serials holdings into SFX at Pollak Library, California State University, Fullerton. The paper detailed the entire implementation process and issues encountered. The SFX menu contains information of call numbers, locations as well as holdings for print collection. However, the local targets were created by location, in which individual titles have to be maintained at the target level. Furthermore, the location codes at a library may be changed often, which could be a big problem to the maintenance in the future. This project is only applicable to titles that have ISSNs or ISBNs. Cowles Library at Drake University changed its procedures for the display of print and electronic journals (Lowe, 2008). In the library's previous practice, the KnowledgeBase contained electronic journals and some print journals, while the OPAC had print journals and part of the electronic journal collection. Under the new policy, all print holdings were uploaded into KnowledgeBase and electronic holdings were removed from the OPAC. This allowed the library to provide users with a combined list of print and electronic journals. The project was conducted in Gold Rush. It focused on procedure changes rather than project implementation.

3. Background

University of Windsor is located at Windsor, Ontario, Canada. It is a multi-disciplined institution with approximately 16,000 full time graduate and undergraduate students (University of Windsor, 2010). The University has two libraries: the Law Library and the Leddy Library. Leddy Library is the main campus library and has over three million items of print and electronic resources. The library's catalogue contains more than one million bibliographic records (University of Windsor Leddy Library, 2010).

3.1 Conifer Project

Leddy Library was one of the first customers of Endeavor Voyager in the mid-1990s and had the Voyager system as its ILS for over ten years. Due to the tightened budget and a highly problematic Voyager system upgrade in 2005, the Library started a strategic plan to look for new ILS options. In November 2006, the Library hosted a one-day ILS symposium in which the Georgia Public Library Services (GPLS) presented the Evergreen open source ILS and its implementation in the Georgia Library Public Information Network for Electronic Services (PINES) consortium. The Library was impressed by the success of the system and the cost the PINES consortium saved with the adoption of Evergreen compared to other traditional vendor ILS systems (Rhyno and Liu, 2009). The Evergreen library system is free open source software: any library can freely download, install, use and modify the system as necessary. It was initially designed for the PINES consortium, a public library system. Since its first implementation in the PINES, the system has been adopted by over five hundred libraries, including public, academic, school and special libraries (GPLS, 2008).

In 2007, the Conifer Project was created by the University of Windsor and four other universities, including Algoma University, Laurentian University, McMaster University and Northern Ontario School of Medicine in Ontario. The project aimed at adopting the Evergreen open source ILS as the common library system to provide cost-effective, sustainable service in a mini-consortium. As the first academic library consortium which would employ the Evergreen, we planned to contribute to the Evergreen community in many areas, such as academic reserves, acquisitions, serials, documentation, and Internationalization, i.e. adapting the software to the languages of French and English in the Canadian library environment (The Conifer Group, 2007). All partners would share the same set of servers and the union catalogue. On May 4th, 2009, the Leddy Library went live with Conifer. The Evergreen ILS became its main library system. Evergreen is an integrated library system, supporting the functions of circulation, cataloguing and OPAC. However, because it was originally designed for public library systems, Evergreen did not have the serials module when the Conifer project launched. There is an urgent need for the library to find an efficient way to manage and provide access to the library's print serials collection.

3.2 Serials at Leddy Library

With the ever-increasing amount of electronic resources, the Leddy Library spends more and more acquisitions budget on electronic titles. On the other hand, the print serials subscription continues decreasing in the library. Among its over 40,000 print serials titles, only about 700 were active in the end of 2009.

Prior to the implementation of SFX with the Ontario Council of University Libraries (OCUL) consortium in 2004, the library managed all electronic and print serials

in the Voyager system. Then the library adopted a policy to maintain its electronic serials in the SFX KnowledgeBase and the print serials in Voyager. As a result, all print holdings and partial electronic titles were searchable through the OPAC, and the SFX menu provided information on electronic titles only. There was no single access interface for users to find all forms of serials holdings, such as electronic, paper, microforms, etc.

According to the Leddy Library Department of Access Services Annual Report 2008/09 (Bonasso, 2010), the usage of print serials at the library had dramatically decreased in the past ten years. In 2000/01, about 65,000 bounded volumes and 37,000 current issues were used or circulated; however the number went down to 7,000 or so for each category in 2008/09. On the other hand, the usage of electronic journals via SFX increased significantly. In 2006/07, the number of requests was around 450,000 and click-through was 325,000. Two years later, the number reached approximately 705,000 and 417,000 respectively. The SFX services, including the SFX menu and the journal A-Z list, have been an essential tool for users to access the library's journal collection. This is consistent with the findings in literature, such as the survey conducted by Ferguson et al. (2006) and Yi and Herlihy's (2007) study.

4. The Print Serials Project at Leddy Library

In order to cope with the problem of the missing serials module in Evergreen and to better meet our patron needs, a print serials project was developed as a supplement project to the Conifer project at the library. In this project, all print serials were uploaded and maintained in the SFX KnowledgeBase. The SFX menu provides users an integrated, user-friendly view for all serials holdings and access information in all forms. Through the integration of SFX and Evergreen system, the SFX menu for all serials records is

accessible from the Evergreen library catalogue as well as the journal A-Z list, Google Scholar and other search interfaces.

The project started in early 2009. It consisted of two sub-projects: one was to incorporate paper, microform and other forms of serials information into SFX; another was to integrate SFX with the Conifer (Evergreen) OPAC for serials access.

4.1 Incorporating Print Serials into SFX

This project adopted and customized the method based on the first approach described by Walker (2005) and the work presented by Hogarth (2005). Different from previous work, in this project the print serials holdings information is maintained in one place, the SFX KnowledgeBase, rather than in both the link resolver and the library catalogue. This would lessen staff's burden to maintain holdings in two places. In Hogarth's (2005) article, the local targets were created by location which was not appropriate to our collection. The library's serials records were downloaded from its legacy Voyager system where there were separate records for titles in different formats. The multiple records for one title need to be set up as different portfolios to different targets in SFX; otherwise the library may have to spend tremendous time to merge these records. Therefore, creating local targets by format is a natural way to upload and maintain serials records in different forms in the library's collection. The following is a list of local targets created in SFX:

Windsor_Cassette_Serials_LCL

Windsor_CD_ROM_Serials_LCL

Windsor_Diskette_Serials_LCL

Windsor_DVD_Serials_LCL

Windsor_Microcard_Serials_LCL

Windsor_Microfiche_Serials_LCL

Windsor_Microfilm_Serials_LCL

Windsor_Paper_Serials_LCL

Through this format-based approach, the print serials records can be uploaded into the SFX KnowledgeBase directly. All serials records can be grouped by its form in the SFX menu and provided access information accordingly: for online resources, coverage information and links to target databases will be provided to users; and for resources in other forms, call numbers, locations, volumes or special access notes will be presented to users in the same screen. See the example in Figure 1.

“Take in Figure 1”

In this example, the SFX menu clearly tells users that the library has online access to the journal of the Journalism Quarterly through both EBSCO and ProQuest but with different coverage. The library also has paper and microfilm copies of this journal back to 1924. All holdings and access information to this journal are presented to users in the same place. Users do not have to go to the library catalogue to decipher the holding statements for the library print collection.

We did not encounter many technical difficulties in this sub-project, but various issues associated with data cleanup of original print serials records. The lack of ISSNs was one of the biggest challenges. For historic reasons, the ISSN field of some print serials records was removed from the Voyager database. It is time-consuming and challenging to find the ISSNs back. Xu (2010) identified eight contributing factors to hidden title issues in SFX migration, including thresholds, translated journals, alternative titles and journals that do not have ISSNs. The solutions to these issues proposed by the

author are valuable to this sub-project. The SFX look-up tool is useful to help retrieve ISSNs. But it is also problematic as Xu (2010) pointed out. Manual checking and verification are necessary to the process. Some other issues are related to the original data quality, such as incorrect ISSNs (the ISSN of a record was incorrect for some reason) and incorrect locations (for example, a location code may not exist any more, but it was still listed for some records in the database. The physical item may have been assigned a new location code or moved to another place, etc.). The process of data cleanup cannot be skipped before any data could be uploaded into SFX. As Xu (2010) stated, the reports generated by the DataLoader are very useful for staff to identify and fix problems with the original data from Voyager, such as problematic records; or issues related to the SFX KnowledgeBase, such as missing objects in SFX.

4.2 Integrating SFX with Conifer

Since SFX has become the primary source for both print and electronic journals at the library, it is important for the library to provide a link to the SFX menu when users search in the Conifer (Evergreen) library catalogue.

At the time when the Conifer project was launched, the record summary view for a selected title in the OPAC only displayed ISBN and other fields specifically for monograph. There were no ISSN and other related fields available on the record summary page for a serial title. Therefore, the integration of SFX and Conifer contained three main steps: (1) finding the ISSN and other fields or subfields for a given serial record; (2) enabling the software to selectively display the fields particularly for a serial or a monograph; (3) linking to SFX from the OPAC if there is a valid ISSN for the selected record.

In order to get the ISSN and other fields for serials records, a new JavaScript library, rdetail_custom.js was developed to add these fields on the record summary page. This file is located at /openils/var/web/opac/skin/<institute>/js in the OPAC module. It contains functions to retrieve the MARC record for a selected title, including all data fields, control fields and their subfields. If the 022 field is not empty, the SFX button will be activated on the record detail page.

In the second step, two other files which were originally in the system were modified. One is the rdetail.js, which is located at /openils/var/web/opac/skin/<institute>/js. The display of the ISBN field was modified from always display to only display when the ISBN is not empty. Also the ISSN field would be displayed on the screen when it exists in the metadata for the record.

The following line was modified from:

```
G.ui.rdetail.isbn.appendChild(text(cleanISBN(record.isbn())));
```

to:

```
var isbnText= text(cleanISBN(record.isbn()));  
if (isbnText != null){  
    if (isbnText.length > 0){  
        G.ui.rdetail.isbn.appendChild(isbnText);  
        unHideMe($('rdetail_isbn_row'));  
    }  
}
```

Another file is the rdetail_summary.xml in the directory of /openils/var/web/opac/skin/<institute>/xml/rdetail. A tag was added to the SFX button and additional modifications were applied to control the display of record summary view,

including the fields of ISSN, publisher, place of publication, etc. The following are some customizations applied to the table rdetail_details_table:

(1) Adding a tag to the SFX button

```
Changing the title row from:
<td nowrap='nowrap' class='rdetail_desc'>&common.title;</td>
to:
<td nowrap='nowrap' class='rdetail_desc'>
  <a style='float:right; white-space:nowrap;' class='hide_me' id='rdetail_sfx_check' title='Check All
Holdings'>
  <img border='0' target='_top' src='../local/images/sfx_button.gif' /></a>&common.title;
</td>
```

(2) Hiding the ISBN row at first, and enabling it at later time

```
Original codes:
<tr >
  <td nowrap='nowrap' class='rdetail_desc'>&common.isbn;</td>
  <td class='rdetail_item' id='rdetail_isbn'> </td>
</tr>
Modified codes:
<tr class='hide_me' id='rdetail_isbn_row'>
  <td nowrap='nowrap' class='rdetail_desc'>&common.isbn;</td>
  <td class='rdetail_item' id='rdetail_isbn'> </td>
</tr>
```

(3) Adding an ISSN row

```
<tr>
  <td nowrap='nowrap' class='rdetail_desc'>&common.issn;</td>
  <td class='rdetail_item' id='rdetail_issn'><MARC datafield="022"></MARC></td>
</tr>
```

(4) Adding a Place of Publication row

```
<tr>
  <td nowrap='nowrap' class='rdetail_desc'>Place of Publication</td>
  <td class='rdetail_item' id='rdetail_place_of_pub'><MARC datafield="260"
subfield='a'></MARC></td>
</tr>
```

The last step is to link to the SFX menu if an ISSN is available. The `check_sfx.js`, a new JavaScript library was developed to add ISSN enable function and to construct checking holdings information in SFX. This file was added to the directory of `/openils/var/web/opac/skin/<institute>/js`. The source code is as follows:

```

function build_sfx_url( issnText ) {
    issnText = cleanText(issnText, " ")

    if (issnText == "")
        return false;

    var http_str = "http://sfx.scholarsportal.info/windsor-default?url_ver=Z39.88-2004"
        + "&url_ctx_fmt=infofi/fmt:kev:mtx:ctx&ctx_enc=info:ofi/enc:UTF-
8&ctx_ver=Z39.88-2004"
        + "&rft_id=info:sid/sfxit.com:azlist&sfx.ignore_date_threshold=1"
        + "&rft.issn=" + escape( issnText )

    var issnCheck = $("rdetail_sfx_check");
    issnCheck.setAttribute(
        "href",
        http_str
    );
    issnCheck.setAttribute("target", "SFXWindow");

    return true;
}

```

To accommodate these new or modified files into the system, the file `page_rdetail.xml` should be revised accordingly. It is located at `/openils/var/web/opac/skin/<institute>/xml`. The following lines were added to the top of the file to define new JavaScript libraries:

```

<script language='javascript' type='text/javascript' src='<!--#echo var="OILS_OPAC_JS_HOST"-
->/skin/<institute>/js/rdetail_custom.js'></script>

<script language='javascript' type='text/javascript' src='<!--#echo var="OILS_OPAC_JS_HOST"-
->/skin/<institute>/js/xregexp.js'></script>

<script language='javascript' type='text/javascript' src='<!--#echo var="OILS_OPAC_JS_HOST"-
->/skin/<institute>/js/check_sfx.js'></script>

```

The ISSN field now will be displayed in the library catalogue instead of the ISBN for a serial title. If an ISSN exists for the selected record, the SFX button which links to

the SFX menu will show up on the record summary page. Figure 2 is an example of the record summary view for a serial title searched in the OPAC.

“Take in Figure 2.”

In this example, an ISSN is displayed on the page. Prior to this project, the system only displayed the ISBN field for any record disregarding the availability of the field. The SFX button is also provided for the record on the page. By clicking on the button an SFX menu will pop up, which contains holdings and access information for this title.

When there is no full-text available for a specific title, users may wish to search the library catalogue as the last resort. The library provides its users a link to Conifer OPAC in the SFX menu. This is quite straightforward and the method is similar to creating the target parser for any other ILS in SFX, such as Voyager, Aleph, etc. Scott’s (2009) blog details how to create an SFX target parser and add a target for Evergreen open source ILS in the SFX menu.

In this project, we encountered some issues and challenges related to open source software implementation. Most of them were associated with local customization, such as the customization for the display of serials records in the catalogue. It may take much longer time for system staff to implement an open source project compared to a proprietary system. In addition, open source software often lacks decent documentation, which presents another challenge to system staff.

On the other hand, there are advantages with adopting open source software. Because the source code is available for any adopters to utilize or modify, libraries have the flexibility to customize the views and functions of the system to better meet their local needs. Libraries can also set up the timeline and priorities for any projects according

to their own schedule without negotiating and waiting for the vendors. Another advantage is that open source software usually has an online community for adopters to share ideas and expertise. Evergreen library system has been implemented by many libraries, which formed a large community for system development and support. In this project, some codes were based on the work by the University of Prince Edward Island library (<http://library.upei.ca/>).

The customization of SFX menu interface and the integration between SFX and Conifer were completed in the summer of 2009. All active serials and most titles having an ISSN have been uploaded into the SFX KnowledgeBase. Feedbacks on this project from our librarians and users are very positive. Will this project promote the use of the print collection at the library? Will it help reduce the Inter-library Loan requests for titles in print formats? Further investigation and analysis on the statistics in the future would be helpful to answer these questions.

5. Conclusions and Future Work

There is no technical difficulty to upload serials data into SFX. However the data preparation process can be time-consuming and challenging. Although it costed a large amount of staff time to clean up the print serials records, it was a good opportunity for the library to improve its data accuracy and to increase the interoperability and accessibility of its print collections in the long run.

Working with open source software can be challenging and time-consuming as well. It may take long time for libraries to implement open source systems. It also requires staff to have expertise with software development and to be knowledgeable of

open source communities. Nonetheless, there are advantages with the adoption of open source software. It gives libraries flexibility to customise systems and determine their own priorities. Libraries would have the opportunity to better meet their local needs, share resources with other adopters, and get support from and make contributions to the open source community.

Currently, only print serials with an ISSN were enabled in this project. For those records that have no ISSNs, we may be able to upload them into SFX, and link them via bibliographic ID or other unique field to the library catalogue in the future. Furthermore, the project may be extended to include electronic books.

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Figures (2 in total)


Figure 1: SFX menu for a serial title with online, paper, microfilm holdings.



Source: The journalism quarterly [0196-3031]


 [Full Text Online](#) EBSCOhost Communication & Mass Media Complete

Available from 1975 until 1994

 [Full Text Online](#) ProQuest ABI/INFORM Global

Available from 1996


Most recent 1 year(s) not available

 Microfilm Collection at Leddy Library

Call Number: PN4700 .J7

Location: Leddy: Serials microfilm -- Media Centre

Volumes: v.1 (1924)-v.43 (1966), v.52 (1975)-v.58 (1981), v.69 (1992)

 Print Collection at Leddy Library

Call Number: PN4700 .J7

Location: Leddy: Serials Collection

Volumes: v.1 (1924)-v.57 (1980),v.58:no.1 (1981)-v.58:no.3 (1981), v.59 (1982)-v.68

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Figure 2: Record summary for a journal in the OPAC

journalism quarterly

Windsor System

Result 1 of 69 >> End	
Record Summary	
Title	 Journalism quarterly.
Author	American Association of Schools and Departments of Journalism
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