Leveraging Public Knowledge Project's Open Conference Systems for Digital Scholarship

Who we are

Dr. Elliot King – Professor of Communications
Matthew Treskon – Technology Librarian
Youlanda Halterman – Web Coordinator

Loyola Notre Dame Library (LNDL) is an independent 501c3 not-for-profit corporation in northern Baltimore City serving two universities, Loyola University Maryland and Notre Dame of Maryland University. In the 70s, the two schools decided to leverage their geographic proximity and share library services. Although we are independent and are ultimately responsible for our own information technology, we partner with the two universities for key services. For example, we are on Loyola's network.

As Technology Librarian, I oversee IT at LNDL and serve as the bridge between IT and librarianship. I also support several digital scholarship projects along with Youlanda and a couple of librarians.

Youlanda Halterman serves as Web Coordinator and has overseen the launch of the Media History Exchange and continued to develop it.

Dr. Elliot King is a Professor of Communication at Loyola University Maryland. The Media History Exchange is his brainchild and continues to provide vision for its development.

What is MHX – a brief history

With funding from a Digital Humanities grant from the National Endowment for the Humanities, Dr. Elliot King launched The Media History Exchange (MHX) in 2012. This effort included a team of researchers in journalism history as well as experts in archiving and digital architecture. In Dr. Elliot King's words:

"The Media History Exchange is an archive, social network, conference management tool and collaborative workspace for the international, interdisciplinary community of researchers studying the history of journalism and communication … It opens a new scholarly space between the academic conference and the peer-reviewed journal by archiving "born digital" conference papers and abstracts that frequently have not been saved previously … Rather than focusing its recruitment efforts on individual researchers, as many current projects do, the goal of the MHX is to link a number of established small, interdisciplinary conferences and ad hoc scholarly meetings, allowing participants in each to find colleagues in the others—breaking down disciplinary siloes and enabling new, collaborative activities."

One of the primary focuses of the Media History Exchange has been to host the "Joint Journalism and Communication History Conference (JJCHC)" co-sponsored by the American Journalism Historians Association and the History Division of the Association for Education in Journalism and Mass Communication. This one day conference serves the niche research fields of journalism history and communication history in an environment where the two groups can meet and discuss.

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Why we needed a better system

Originally developed in Drupal with substantial custom code, MHX has been maintained by Loyola Notre Dame Library (LNDL). With limited developer support, the maintenance for the site became increasingly difficult as standard modules needed to be updated for security concerns and custom modules needed to be reworked to accommodate these updates. Once we noticed that the site requires an upgraded Drupal base that in turn required an updated operating system (Drupal 6 to Drupal 7), we decided it was time to think through our options.

Yes, we could upgrade our operating system with appropriate software packages, and then migrate and upgrade MHX. The custom code, of course, was written by someone who has moved on after building a pretty good system in 2012. With some persuading, he might serve as consultant if we really wanted to try to maintain the status quo.

However, maybe we can do better than status quo. The system was built in 2012 and it is now 2017. Perhaps there are ready built open source technologies that we could leverage?

From the user's perspective, Dr. Eliot King had a list of additional functionality that he'd like a new MHX system to provide:

1. The ability to easily assign proposals to reviewers and track reviews, with as many proposals as possible located on a single webpage, in alphabetical order by the proposal name, similar to the All-Academic site used by AEJMC. Force reviewers to leave numerical scores for each submission. This is paramount!

2. The creation of a single microsite within MHX for the 2018 JJCHC, so submitters will not have to click a box for "2018 JJCHC." The box-checking feature was overlooked by so many submitters, causing frustration and lost proposals.

3. The ability to generate mass email lists for (a) all submitters, (b) authors of all accepted abstracts, (c) all reviewers, and (d) all registrants. In addition, there should be an option to email a specific submitter, reviewer, or registrant through the system. Ideally, there should be an outbox that documents all sent emails.

4. A search function, located in an intuitive location, to easily find submitters, reviewers, and proposals.

5. Easily handle multiple conferences

What went in to our decision making

In the spring of 2017, LNDL technology staff and Dr. Eliot King began to investigate alternatives. We briefly considered commercial services, such as CVENT, BusyConf, and EventBrite. However, these services were either cost prohibitive or did not provide the review process functionality we needed.

A review of open source solutions available at the time returned:

- Open Conference Systems (pkp.sfu.ca/ocs)

- OpenConf (www.openconf.com)

- Conference management software. (COMS) https://www.conference-service.com/index.html

- Collaborative Knowledge Foundation https://coko.foundation/

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Dr. King reviewed these options and found Open Conference Systems to be the most robust technology. However, he had reservations about the technical chops necessary to implement.

After reviewing the technical requirements, I found that this would be a perfect fit to our digital scholarship web server which already operates on a standard LAMP stack (Linux, Apache, MySQL, PHP). Youlanda had expertise with website management and I had expertise with operating a Linux environment including these four technologies.

From the user's perspective, Dr. Elliot King found that the system met all of his requirements.

PKP does provide hosting support starting at $850 based on https://pkpservices.sfu.ca/content/conference-hosting (March 3/5/2018). However, we had the technology and skillset to operate the Linux environment so we decided to try it out.

What is PKP-OCS

"PKP is a multi-university initiative developing (free) open source software and conducting research to improve the quality and reach of scholarly publishing"

From <https://pkp.sfu.ca/>

"Open Conference Systems (OCS) is a free Web publishing tool that will create a complete Web presence for your scholarly conference. OCS will allow you to:

- create a conference Web site

- compose and send a call for papers

- electronically accept paper and abstract submissions

- allow paper submitters to edit their work

- post conference proceedings and papers in a searchable format

- post, if you wish, the original data sets

- register participants

- integrate post-conference online discussions"

From <https://pkp.sfu.ca/ocs/>

The software is distributed under the terms of the GNU General Public License.

Implementation
Technical Requirements

- PHP: >= 4.2.x (including PHP 5.x); Microsoft IIS requires PHP 5.x
  OCS 2.x currently will not run on PHP 7.x.

- MySQL: >= 3.23.23 (including MySQL 4.x) or PostgreSQL 7.1 (including PostgreSQL 8.x)

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- Apache: >= 1.3.2x or >= 2.0.4x or Microsoft IIS 6

- Operating system: Any OS that supports the above software, including Linux, BSD, Solaris, Mac OS X, Windows.

Skill Requirements

- An individual that can configure MySQL, Apache, and the web server. Ability to navigate and selectively edit PHP code helpful, too

- Or, a team of people that can work together to do those things

- Someone who knows the basics of how a conference is administered

Install was fairly simple since we already had an operational LAMP digital scholarship server. As a last step, the install process included an initial walk through of site configuration via web forms. Dr. King, Youlanda, and I were able to set up the conference in a couple of hours and establish all the features we wanted.

A lot of our post-install work involved experimentation and walking through functional scenarios. For example, "what is it like for an author to submit a proposal?" "How is the proposal received?" "Who gets notified?" "How is it processed?" I think we worked well as a team: Youlanda and I provided the programmatic "poking" of the system after minor modifications and Dr. King provided his thorough understanding of how a conference is actually administered.

Dr. King: "We could not get a couple of things to work—most notably we could not get the qualitative reviews to attach and be sent out automatically. People had to contact me if they wanted to see them and I had to extract them manually and then email them to the people. It was not entirely obvious how to automate emails etc. but we made only a couple of mistakes along the road."

Dr. King noted that it would been helpful if there had been a training video. The challenges we came across were usually not from the system itself but a matter of us having to learning the system on the fly and we each had limited time to devote to learning the system.

Customization
Although OCS generally worked out of the box on our standard-ish Apache web server, we had to configure a few things.
Server
- We worked with the previous site manager for Media History Exchange to transfer the domain mediahistoryexchange.org to a directory on our web server. There are several options for this which I don't fully understand but, based on his recommendation, we updated the AName listing
- Since users were going to login, and since it best practice to use HTTPS, I worked with our web host to install a Let's Encrypt certificate. This ensures that visitors to the site can trust a secure and private connection

Data
- We had to migrate the old user database and upload to the new system. OCS has a manual input – one at a time, and a bulk XML upload. We had too many users for manual input so we wanted to work with bulk upload. Unable to find the data definition, I exported a few

sample records from OCS to see the format. I then took the MySQL dump of the old user database, manipulated it using a combination of Notepad++ and Excel to format it similarly to the sample upload, and then I uploaded it. However, I was only able to upload email address and not First/last name.

- I implemented a backup routine for the web files and database entries based on scheduling via crontab and Unix commands for mysqldump (database) and cp (web files)

Code

- After exploring why system generated test messages were being sent to spam/junk folders, we learned that the problem only occurred for emails that said that they were from someone @loyola.edu instead of something@mediahistoryexchange.org. Basically, contemporary email servers will validate incoming email addresses and check whether the sender's address is actually coming from a known IP at that domain so that it can filter what is most likely junk. A sending email program can say they are sending an email from any domain they want. We briefly considered requesting the university IT to update the SPF to say that our web server is an acceptable sender of Loyola.edu but then realized that would be too much work/bureaucracy. Instead, I modified all send email to come from a noreply@mediahistoryexchange.org which would not be blocked by receiving email servers.

- By default, OCS permits anonymous account creation. Based on reasons I'll describe later (foreshadowing!), we wanted our own human-intervention-two-factor authentication. I edited the web code to remove the "create account" feature from the login page. Instead, a new user would have to email the Professor to confirm interest with name, email, and research interest. This also involved creating two guides: one for the site administrator (Professor) on how to create a new account and one for the end user. The guides were fairly simple PDFs with 3-4 screenshots and I understand were easy to follow.

How it works

Open Conference Systems provides for configuration across the site as well as configuration for individual conferences. Site configuration enables administrative functions like deleting server cache, user sessions, etc, and installing system plugins. Authentication can be connected to LDAP if you have an institutionally bounded user population.

An administrator can create a new conference from the conference manager. The administrator can: set up the conference site, schedule a conference, review prepared emails, configure reading tools, upload files, and check languages. The conference manager provides some look-and-feel customization based on CSS. There is an interface for managing style but it is a "poke and see what happens" rather than a dynamic preview. If you love CSS, you can edit your own CSS directly, too.

Once the conference has been created, the administrator can: manage users, create conference info, establish registration procedures, define roles and make connection to a payment handler.

but Users of OCS are assigned one of five roles: director, track director, reviewers, authors, and readers. The assignment of role can be done at account creation or at any time. A director manages the whole conference, a track director manages a subset of the conference (such as pertaining to a sub-discipline), a reviewer makes recommendations on proposals, and author submits proposals and papers, and readers can just read.

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The workflow of the open conference system can be configured at initial conference set up and consists of three processes: submission, editorial process, and publication.

The submission process is fairly simple. Based on established guidelines and requirements, the author submits a proposal and attaches relevant documents.

The editorial process then receives the submission and processes it based on rules established by site administrator. For our current conference, the steps are as follows: the track director assigns a reviewer(s), the reviewer makes a recommendation, the track director can override, the director can override. Throughout each stage in the editorial process, the system can send automated and/or customized emails to affected parties.

The publication process ensures that all accepted manuscripts are sent the presentation list where the director and track directors can begin scheduling the conference.

Administrator Challenges

Generally, the Open Conference System worked for our needs. Dr. Elliot King and other conference administrators, directors, and track directors, experienced a few challenges that were the result of user interface issues and peculiarities with workflow.

Regarding interface issues, I received the following from Dr. Elliot King:

"There were a couple of places where users had to do one extra click to complete a process and that was not always intuitive. At least two or three reviewers did not complete the final click on their reviews so the reviews were not sent to the track director. I was able to do that manually as well."

"Enrolling people in different roles was not intuitive at first. The button to do the enrollment was at the bottom. But once we figured it out, there was no problem."

Regarding process, Dr. Elliot King notes:

"We are a small conference so the conference director also served as the track director. But in the beginning, the delineation of duties between conference director and track director was a bit confusing. Also, the people organizing the conference this year complained that they had to assign the reviews to themselves as track directors before they could assign reviewers so it was a two-step process"

Regarding system concerns:

"The organizers had a lag between when they would accept an abstract (and the abstract was then posted on Web site) and when they sent the acceptance notifications. That confused some people (they were not sure if their abstract had been accepted or not)."

One reviewer uploaded the wrong comments to a review and though I could see and access the comments, I could not figure out how to correct them. But since I had to send out the comments manually upon request, that wasn't an issue."

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End User Challenges

Dr. Elliot King served as front end support and corresponded directly with authors. Dr. King provided me with the following comments:

User Interface

"In reviewing your email and working within the site, I fear perhaps I have embarrassed myself and what my colleague saw was not a schedule for the conference but rather a list of submitted abstracts... meaning I may have spoken too soon regarding my presenting at JJC..."

"I believe when I submitted it said I could follow my abstract through the exchange site but I have not been able to readily do so, perhaps nothing has been done yet and therefore there is nothing to see? That is how my colleague assumed my abstract had been accepted... but it sounds as if they will also be sending individual emails?"

"While I receive emails telling me I have a new notification from the exchange site, I am unable to access these when I login... I see them and even see what appears to be a way to "click" them but then nothing... I fear I am missing important information..."

After the JJCHC, I will ask Dr. Elliot King to work with me on a plus delta. I hope this will include follow up with all conference participants.

Website hacked!

[screenshot of page]

At about 3am EST on Sunday December 10th, the MHX website was hacked by Pro-Palestinian activists. Dr. King notified me a few hours later. My wife works on Sunday so I put on Daniel Tiger for my 3 year old (it's a bit scary how engaging TV is for a three year old and so we try to keep screen time to a minimum – for emergency circumstances).

Immediately, I:

- Edited the Apache configuration to deny all
- Ran Unix commands to identify all pages that were modified within the time frame (I have the basic Unix commands in my head but for commands of any complexity I find that Google + StackOverflow will almost always answer my question
- Tarballed up existing MHX directory
- Emailed web hosting – they were of no help

Later that day:

- Restored MHX from back up
- Reviewed file/directory settings – found error in files directory. Corrected
- Reviewed database and settings: MHX had a dedicated MYSQL account, no edits found but restored from previous backup. No data lost

Monday

- Emailed library administration and campus IT. Confirmed situation under control. The affected server had no connections to university
- Request Google recall
- Disabled end user account creation. Created guides for administrator and end user
- I've implemented web check for any changes in the display

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Lessons Learned:
Review install/configuration notes thoroughly before proceeding
Don't assume that no one would mess with an academic site

Developments/Success

Compared to what we have before, the application of the Open Conference System for the Media History Exchange has been a success. Dr. King notes that they received a record number of submissions and that he doesn't think that anybody was put off by the two-step email authentication process. In fact, the two-step process ensured that each author could receive a proper account creation that ultimately made it easier for them to submit a proposal.

Although we were new to the technology and we walked through and experimented with every step of the process, there was still an ample amount of "learn by doing." One consequence of this was that our documentation was limited. For future conferences, we can improve MHX by providing additional documentation, such as screencast recorded tutorials for both authors and directors/track directors/reviewers.

Regarding security, I will look in to campus IT to investigate options for penetration testing or whether there is an acceptable/preferred way to hire a white hat hacker. I am also investigating the application of Docker containers via Amazon Web Services with campus IT for our digital scholarship projects. Besides automating deployment of new sites, each Docker container would be "containerized" and would not expose other sites if compromised.

In general, I have been happy with Open Conference System and so has Dr. King: "All in all, the site worked well and was efficient enough that I think it is a very viable platform and look to build on it for next year."

Dr. King has also received a request from a colleague whether MHX can host their conference as well. Dr. King states "If that were to happen, we would begin to realize one of the goals in the original grant for the MHX to be a platform for small conferences like this in the area of media history."

Group Exercise

Get in to small groups and pretend you are a small/mid-sized library. Should your library do this? Pick a side and put together a brief "sales pitch." In your sales pitch, discuss security and campus partnerships.

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