AC 2009-189: PIMP MY BROWSER: NEXT-GENERATION INFORMATION LITERACY DEMANDS CONTROL OF THE BROWSER

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Pimp My Browser: Making Your Browser an Efficient Research Tool with Plug-ins

Abstract

Consider the present browser. It is conformant to W3C standards, displays information, both visual and audio, and every browser looks like every other one with the only differences being cosmetic. Now in the age of Open Source software, browser users can upgrade their browser at no cost, to automate many functions of the search. Features a browser customized for research should have include; instant-on access to databases and indexes, citation management, and access to automatic translations. While none of these features are part of the default package of any browser, browser customization is useful and overlooked and deserves more attention.

Introduction

The web browser is the primary means by which the user interacts with the Web, but for all its ubiquity, customizing the web browser is a topic that is largely ignored beyond the computer science literature. In contrast, library literature has focused on the database, in keeping with the library tradition of honing one's database searching skills on the standard tools of the computer world: hardware, software, and the network.

The Firefox Open Source browser allows customization through what it calls add-ons (also called extensions). Mozilla was originally formed from the ruins of Netscape, a pioneering browser that was seen off by Internet Explorer. Before it died, Netscape relicensed its browser as Open Source. It became the Mozilla Project and Firefox was the browser. The bare-bones nature of the original Firefox led to a virtuous circle where the released browser became popular, the developers took advantage of the easily installable add-ons to create more add-ons and features, and the popularity of the add-ons lead to more people being interested in developing them. Today, add-ons are one of the features that lead people to choose Firefox over competing browsers.

Why use add-ons?

The advantages of Open Source add-ons include low cost, freedom, flexibility and a chance to experiment. Internet Explorer has up to not been very supportive of third-party software, with Adobe Acrobat being the major exception. In contrast Firefox has relied on third parties adding functionality to the browser for much of its progress. Internet Explorer 8 has promised some changes from the traditional Microsoft model of proprietary standards and limited interoperability, primarily in reaction to the success of Firefox.[1]

The differences between Firefox and Internet Explorer are most obvious in their licenses, and a few quotes will illustrate this. Here is some standard boilerplate language from the Microsoft Vista license, "SCOPE OF LICENSE. The software is licensed, not sold. This agreement only gives you some rights to use the software. Microsoft reserves all other rights."[2] The essence of

the GNU General Public License (the original Open Source license) is described in the Basic Permissions section where it states: "This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law."[3] Legally, Free Software Licenses and Open Source Licenses are not identical and the user of Open Source software should be aware of the differences.[4]

Pop-up blockers are a clear difference between Firefox and Internet Explorer. Firefox users have the option of the third party Adblock plug-in to block annoying pop-up blockers. Internet Explorer comes with a default pop-up blocker. While Internet Explorer has started adding add-on functionality, they were relatively late with the first date shown for the website http://www.ieaddons.com/ being May of 2006 according to the Internet Archive. Another advantage of Open Source software is since anyone can contribute to it, the code must be standards compliant. Again, while Internet Explorer 8 promises better standards compliance when released, Firefox has had that capability from the start.

Finally, the chance to experiment is critical to learning software. While most browser users will never use the freedom of Open Source licenses to modify the code, they can benefit from the work of others and use their modified source code when they release it. With freedom from restrictions, the user can experiment and learn the software more deeply. This freedom allows users to check a database against different browsers to see which one is more responsive. If there is a problem with one browser, this freedom allows one to check for an add-on that might solve the problem. A customizable browser can rapidly go from a curiosity that one is aware of, to an essential tool that one cannot do without.

Add-ons for research

LibX can be thought of as a library catalog with an "instant on" feature.[5] The user no longer has to keep the library catalog (or other catalogs) on a bookmark list and then <click> on Bookmarks then <click> on the library catalog and enter the search. The user simply enters the search at the top of the browser and the search is done. LibX also comes with a feature for searching Google Scholar (with highlight and click and drag highlighted text to the "Scholar" button.) LibX features are only limited by the inclination of the library programmers who administer their library's LibX implementation. AU Libraries Anywhere is a customized LibX toolbar and includes links for searching the library catalog along with keyword only searching other libraries in the Network of Alabama Academic Libraries[6], the local Public Library[7], Amazon.com and WorldCat[8]. This list of features is informed by experience. Auburn's reference librarians are frequently asked to find popular fiction and the LibX toolbar makes shifting from library catalog to the local public library catalog easy. Also, LibX automatically inserts hyperlinks to ISSN & ISBN & DOI numbers on web pages and those links can go to any database or the local library catalog.

In sum, LibX speeds up information retrieval and increases user satisfaction with library services. Also, our toolbar has a link to our ILL online order form, a link to our online reference chat service, a link to renew books, and a link to the full-text of journals online.

A look at the LibX toolbar at Auburn University will give an example of its usefulness.
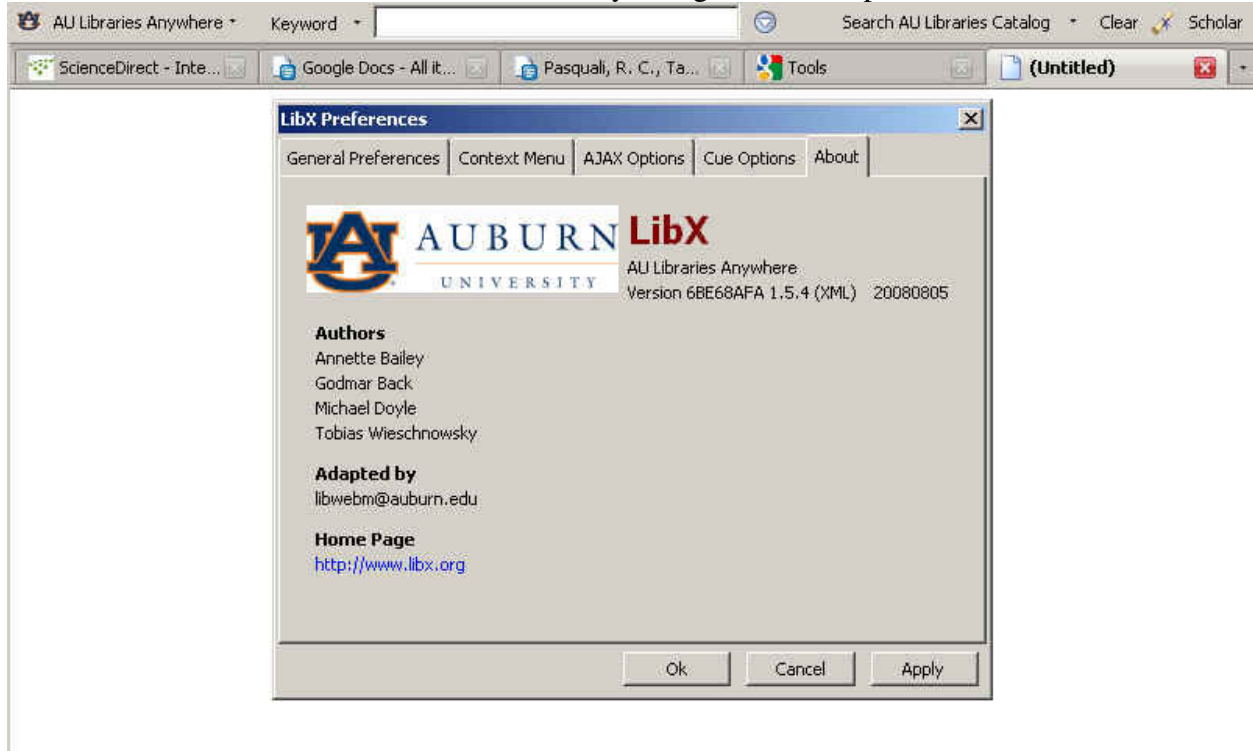
This screen capture shows the default setup for the AU Libraries Anywhere toolbar, the customized LibX setup for Auburn, with the "About" page displayed for LibX. The Scholar heading on the top right of the image is the AU Libraries Anywhere link to Scholar where text that has been highlighted on a page may be dragged to the Scholar button and a Google Scholar search may be done.

Another way to customize search in Firefox is to add new search engines to the search window that is usually located in the upper right-hand corner of the browser. When one has many databases one consults, and no practical way to search them all with one interface, database access can become surprisingly time-consuming. Consider the alternatives, browser bookmarks or links on a page. If one bookmarks, or adds to a favorites list, a favorite database, unless the list is short, it can become a bit like finding a needle in a haystack, especially if the searcher uses folders and keeps the database link in folders. The alternative, creating a webpage, like a Wiki, has its advantages, but it will also run into the same problems as a bookmark list, with the added disadvantage that you need to be sure that the Wiki is always accessible. Customizing the search window with a plug-in like Add to Search Bar[9] makes databases accessible from the browser with one click. A browser search window has links to Amazon.com, ScienceAccelerator[10], NSSN[11] standards and other sites, is helpful in making indexes to scientific literature instantly available.

Citation management

Zotero[12] is a valuable browser add-on developed at George Mason University that provides researchers much of the functionality of citation management software in a browser plug-in. Like other Firefox add-ons it is Open Source software and allows researchers to both save citations from online databases and the full-text of the articles. On the publication and production end, it allows researchers to insert references into Word documents and to publish bibliographies afterwards. This paper's creation was aided by Zotero. Zotero enables automatic saving of citations from standard online indexes, and if the online index is non-standard, or a web page needed for reference, one may also simply type in a Zotero entry. Typing in a Zotero entry is as simple as filling in the blanks for standard citation fields such as Title, Author, and Abstract, along with other fields.

Zotero not only automatically formats references into its database, it also formats bibliographies and footnotes on research papers. It does this with an extra plug-in for either Microsoft Word, or Open Office software. If the paper requires a different citation format, it can be changed with just a few keystrokes.

Researchers who have only performed research manually or with simple online indexes will find Zotero a revelation. The citation database integrates citations, with the full-text and PDF of papers, and allows researchers to add their own tags to papers. About the only limit is that the source must be online. Zotero provides so many capabilities that even experienced users of Zotero have not used them all. The learning curve for Zotero is aided by the online documentation that includes text and video tutorials on how to use Zotero.

Some illustrations are needed to understand Zotero:
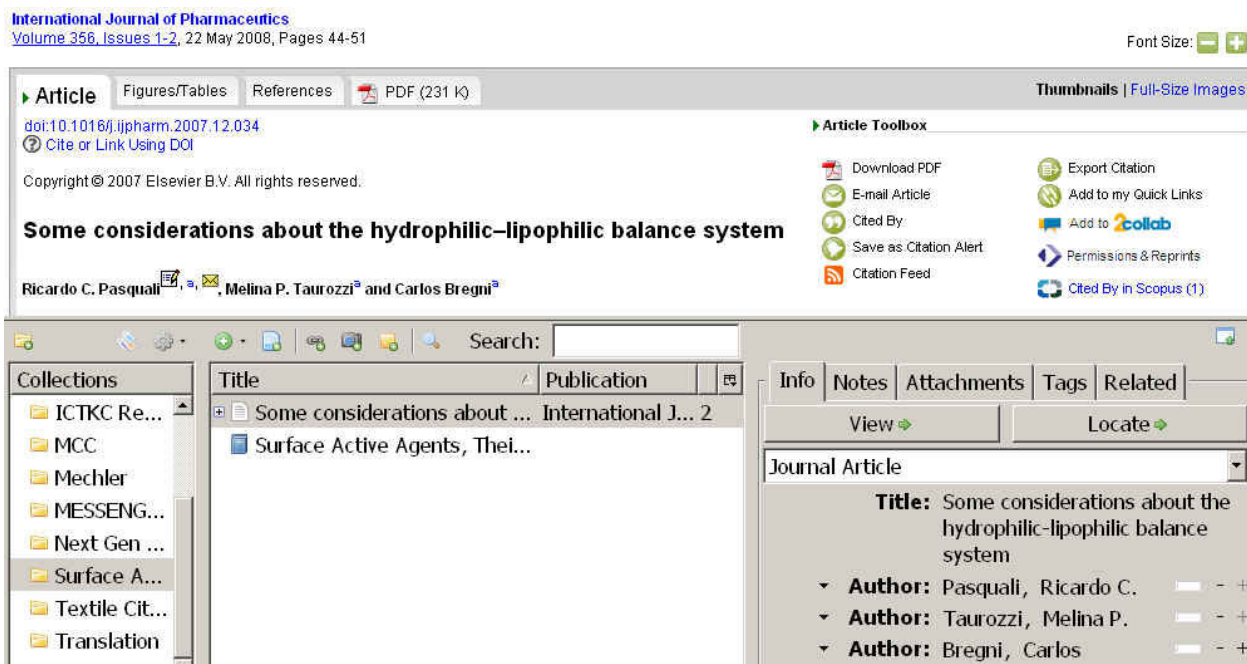
The entry is a saved Zotero Journal Article entry identified as such in the lower right-hand section. In the middle section are two icons, one that identifies individual articles that looks like a sheet of paper and the other that identifies cited books, that looks like a book with a blue cover.

The button in the lower right-hand section labeled View is how searchers can easily access online articles that have been saved in Zotero.

The Zotero file on Surface Active Agents has only two entries, but by highlighting them both in the lower middle frame and dragging them into a Google Docs file, one can create an APA (or any other supported citation style) compliant bibliography:

Pasquali, R. C., Taurozzi, M. P., & Bregni, C. (2008). Some considerations about the hydrophilic-lipophilic balance system. *International Journal of Pharmaceutics, 356*(1-2), 44-51. doi: 10.1016/j.ijpharm.2007.12.034.
Schwartz, A. M. (1949). *Surface Active Agents, Their Chemistry and Technology* (p. 2). New York: Interscience Publishers.

Translations

One service most libraries have never provided is a translations service. This is not because such a service is not desirable, but because demand for the service is too infrequent and the skills and time required to provide a high quality translation is in short supply. The Google Translate[13] to English button can be placed on the browser toolbar to keep that capability close at hand. Google Translate has been evaluated highly by the NTIS in a comparison with other machine translations. The National Science Foundation has been running annual evaluations of machine translation systems to which they invite software developers to submit their software. This section of the paper will draw heavily from the 2008 evaluation.[14] The NSF compares machine translations against 4 high-quality human translations of the same text and assigns a number score ranging from 0 to 1 with 0 being the lowest score and 1 a word-for-word identical translation by both the humans and the machines. Among the best machine translations the scores tend to cluster between 0.2 and 0.4. The translations were of Arabic, Chinese, & Urdu. It should be noted that the people who speak or read these languages constitute approximately 1.6 billion people. In all the rankings, Google Translate software was first in Arabic, 4th in Chinese, and first in English. The results appear significant, especially considering the differences between the scripts that these languages use and English. Of course there are other languages in the world, but it these results give confidence that Google's statistics-based translation software is capable of giving good English translations across many different languages.

To see an example of this service in action, try a search of http://news.google.fr/ for Airbus A380 for a demonstration of the usefulness of this feature. The translate button works best when the web page being translated uses standard, non-colloquial, and non-technical language. Otherwise the translations become unreadable. The user should just beware that errors will creep into most machine translations. The reason one would use Google Translate even when the translations are not better than human translations is that they are not much worse, but they are faster and cheaper than paying a human for a translation.

The Google Translate buttons page supports a wide range of languages:[15]

To add a button, drag it from this page to your browser's toolbar.

Albanian	Arabic	Bulgarian	Catalan
Chinese (Simplified)	Chinese (Traditional)	Croatian	Czech
Danish	Dutch	English	Estonian
Filipino	Finnish	French	Galician
German	Greek	Hebrew	Hindi
Hungarian	Indonesian	Italian	Japanese
Korean	Latvian	Lithuanian	Maltese
Norwegian	Polish	Portuguese	Romanian
Russian	Serbian	Slovak	Slovenian
Spanish	Swedish	Thai	Turkish
Ukrainian	Vietnamese		

While most ASEE members will find the English button most valuable, anecdotal evidence exists that our International students are also finding these buttons useful to translate English-language pages into their own languages.

Add-ons beyond the usual

The list of add-ons in this paper is just a taste of what is available. Other add-ons include those that support social networking sites, current awareness updates, and customizing the look and feel of the browser. The main site for Firefox Add-ons is called "Firefox Add-Ons and provides a wide range of add-ons.[16] The Add-ons range from web management to reference sources like weather reports. One useful feature is that reviewer comments of the Add-ons are included and they add-ons can be ranked by usefulness. For example, one notable add-on that simplifies browser management for the person who uses Google services is called "CustomizeGoogle". Customize Google allows one to protect user security while using Google by forcing all Google connections to https sessions instead of just insecure http connections. If one has a need to look at webpage history, CustomizeGoogle will add links to the Internet WayBack Machine that stores the pages of Internet web pages as they looked in the past. This is very helpful in researching the historical record, but it also serves as an object lesson that nothing is ever deleted from the Internet!

Conclusion:

The next frontier in information is customizing the browser for the individual. Consider that people do not own the web pages they browse and they often do not legally own the software on their computer. The only thing that they bring to the web is their time, and the cliché is true, Time is money. The only way they derive any benefit from the Web is when they save time. When Internet Explorer was first introduced, it was enough that they could go to an online bookstore and browse its inventory and order books for home delivery, all in less time than they could leave their home, go to a bookstore, browse the shelves, select and pay for their books and

return home. Now, when online stores are well established, the only improvement is when they can use the Web in less time than they used to. This means that a customized Firefox browser gives them faster and more direct access to their favorite web pages than they had before. It has taken a long time for the public to realize that the only asset the web gives them is more time and browser customization is the best way to achieve it.

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