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2-2010

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Recommended Citation
Puckett, J. (2010). Superpower your browser with LibX and Zotero. *College & Research Libraries News*, *71*(2), 70-97. Available at: http://crln.acrl.org/content/71/2/70.full

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Jason Puckett

Superpower your browser with LibX and Zotero

Open source tools for research

Most of our powerful research tools now exist on the Web, but libraries shouldn't overlook the ability to add research features to the browser software itself. The extensible nature of the Firefox browser in particular makes it easy to install add-ons that help researchers at every stage of the research cycle, from search and discovery to writing and citation.

Two such add-ons are LibX, which enhances the search process, and Zotero, which eases saving, organizing, and citing sources. The LibX search toolbar can be customized to search your library's catalog and databases, insert library links into sites like Amazon and Wikipedia, and more. Zotero is a citation manager and bibliography creator that is as easy to use as iTunes. They run on any operating system that will run Firefox, and LibX will also work with Internet Explorer for Windows. Both plug-ins are free open source tools developed by universities for academic researchers.

Some of the benefits of choosing open source programs are obvious. Both programs are "free as in beer" (free of cost), so any library or user can download them without restriction. Unlike our licensed databases and software, researchers can continue to use these tools after they graduate or move away from college. (This is more useful for Zotero than LibX, since LibX is customized for use with a particular library's resources.)

Because they are also "free as in speech" (free to use as one sees fit), the library has no vendors to deal with when adopting these programs. Universities develop both programs, so they are highly attuned to the needs of academic researchers. In the unlikely event that the providers of either program discontinued supporting them, another institution could simply download the source code and take over development.

As Firefox plugins, both LibX and Zotero are self-updating. Firefox periodically checks for new versions of all its add-ons and prompts the user to update with a few clicks. This process is unlikely to confuse even users who have never installed software. (The Internet Explorer version of LibX must be updated manually by downloading a new version from the library's Web site and running an executable file.) This allows the library to push out new search options, and Zotero's developers to push updates ranging from new features to updated bibliographic styles. It also allows for far more frequent improvements to the software than most commercial programs provide.

Promoting, teaching, and supporting

Unlike Web-based research tools, researchers must take the active step of installing these programs on their own computers in order to use them. Of course this requires that users first know of their existence and understand the benefits of using them.

The simplest way to provide these programs to users is of course to simply install them on your public computers. Firefox installs add-ons on a per-user basis, so make sure that once installed, they appear for all users logging into the computers. Zotero also includes a second component, the Word or OpenOffice

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toolbar, which must be installed separately in order to use some of the bibliography creation features (see below).

Our library has offered workshops (in person and online) for Zotero, but not yet for LibX. Zotero instruction seems to work well in the online format since the student can follow on their own computer while the instructor demonstrates in the workshop window. Drawbacks include not being able to see the student's screen when problems occur. I have been hesitant to offer LibX workshops thinking that it might take very little time to teach and might not "fill out" an entire workshop.

I recommend creating online instructional materials for both programs. This is useful not only for users' reference, but as an aid to library staff and as a tool to promote the software's use. I have written online guides for both LibX[1] and Zotero.[2] Both guides are Creative Commons licensed, so I encourage you to copy and modify them for your library as long as attribution to me and Georgia State University Library is included.

Figure 1. Visit this article online for detailed images.

Search and discovery: LibX

More than a search bar

LibX is a search and discovery add-on for Firefox and Internet Explorer developed by Virginia Tech University. It's tempting to describe LibX as a search bar, since a multi-function library search tool is the most visible element, but LibX has several other functions that make it worth installing, even without the search bar. The bar appears below the browser's location bar, and works like any other search box. Drop-down menus allow the user to select fields (keyword, author, title) and the resource to search (your catalog, databases, Google Scholar, or anything your LibX administrator selects). The searcher can add additional fields for simple Boolean searching.

LibX also adds several other more subtle discovery tools to the user's browser, though, that the researcher can take advantage of with no effort. On my netbook, where screen space is at a premium, I hide the search bar to save space but still find LibX's other features useful.

Embedded cues and auto-links

LibX scans pages as the browser loads them and checks for metadata, such as book and article citations. When it detects a citation—on Amazon.com or the *New York Times* book review page, for example—it embeds a "cue," a small graphic like your library's logo, that links to the item's record in your OPAC (see figure 1). In other words, if your users (or you) hate to use your catalog, they can use Amazon as a search tool instead, then click through to see if your library has the item they want. (Zotero also works by scanning pages for citation metadata; see below.)

LibX also skims pages for ten- or thirteen-digit numbers and checks to see if they could be ISBNs or ISSNs. Everywhere an ISBN appears on a page, it too becomes a catalog link. Mousing over an ISBN shows a brief citation in a popup tooltip. Wherever an ISSN or DOI appears, LibX creates a link to the corresponding item in the library's OpenURL system. (Occasional "false positives" do crop up with this feature. For example, LibX thinks my office phone number is an ISBN and turns it into a link to a failed catalog search.) LibX also adds OpenURL links when it detects COinS citation metadata in a Web page—this is common in Wikipedia bibliographies, for example.

Context menus

LibX provides a set of customizable right-click context menus. Users can select any text on a Web page, right-click, and select a menu item to search for the selected words. The library would usually want to set up a cata-

Figure 2.

log search option here, and can include other choices like Worldcat, database searches, or Google Scholar.

The right-click menu includes a very useful feature for off-campus researchers, allowing the user to reload any page via the library's proxy server. For example, imagine a searcher locating a useful citation via Google Scholar, but encountering an online journal's paid content login screen when she tries to access it. The searcher can right-click, choose the reload via library proxy option (which can be renamed to something more user-friendly), log in via the campus server, and be redirected back to the desired article without having to go back to the library's Web site. (Library instructors, note that this feature is difficult to demonstrate from an on-campus IP address. A screencast recorded from an off-campus computer works well.)

Administrating LibX

LibX takes some setup before you can release it to your users. There is no default LibX edition; libraries must build a custom edition that works with their local resources. Fortunately this is relatively easy to create. The edition builder simply requires filling out a Web form with some text and URLs (see figure 2), and does not require the skills of a systems librarian or programmer.

Go to libx.org and select Edition Builder to get started. Build a New Edition gives a blank edition, though it's often useful to make a copy of another library's edition to use as a starting point instead. Our statewide University System of Georgia initiative GALILEO has created LibX editions for all USG libraries, and while my library has chosen instead to use the edition we created in-house, I have copied useful features from the GALILEO-built edition to incorporate into ours.

Customization includes needed elements like catalog and proxy server URLs, as well as optional features, such as built-in database searches and graphics to use as embedded cue indicators. More than one person can be assigned as administrator for any given LibX edition, and edition owners can install and test new versions of the library's edition before releasing it to the public. Once a new version is released to users, the Firefox version will update itself from the LibX server automatically (IE users must download and install updates).

Superpower your browser Webcast

If you'd like to learn more about the research tools discussed in this article and see them demonstrated live, join Jason Puckett for the ACRL e-Learning Webcast Superpower your Browser: Open Source Research Tools on Tuesday, March 23 at 1 p.m. Central. The Webcast will identify some of the advantages of using open-source software tools in library research; help you build a personal citation library and automatically generate bibliographies using the Zotero plugin for Firefox; and use the customizable LibX toolbar for search, point-of-need library autolinking, and easy off-campus proxy access. Visit www.ala.org/ala/mgrps/divs/acrl/events/elearning/courses/superpower.cfm for more information and to register today.

Save and cite: Zotero

Zotero (zotero.org) is a citation manager developed by George Mason University's Center for History and New Media (CHNM). It saves and organizes citations from library catalogs, research databases and other Web sites, and can automatically build bibliographies for use in any word processor or text editor. Comparable commercial products include EndNote, RefWorks, and ProCite. I switched to Zotero after teaching EndNote for several years and find Zotero easier to use and more powerful than any commercial citation manager I've tried. Zotero is a Mozilla Firefox add-on and works only with Firefox, unlike LibX. CHNM does not expect to ever create a version of Zotero for IE or other closed source browsers. It does work on any operating system that runs Firefox.

Installing Zotero is as simple as clicking the download button on zotero.org and restarting the browser (I recommend trying version 2.0, which adds some useful features). A small Zotero icon appears in the Firefox status bar (see figure 3). Clicking the icon opens or closes the Zotero library display—the user's collection of saved citations (see figure 4).

Saving and organizing citations

Like LibX, Zotero scans Web pages for citation data. If Zotero detects a citation on the current page, it displays a save button in the browser's address bar, and the user can simply click the button to save the citation to the Zotero library. The save button's appearance changes based on the citation type: a blue book, a white article page, a miniature iPod for sound recordings, and so on. On a search results page with multiple citations, the save button is a yellow folder that allows the user to select which citations to save.

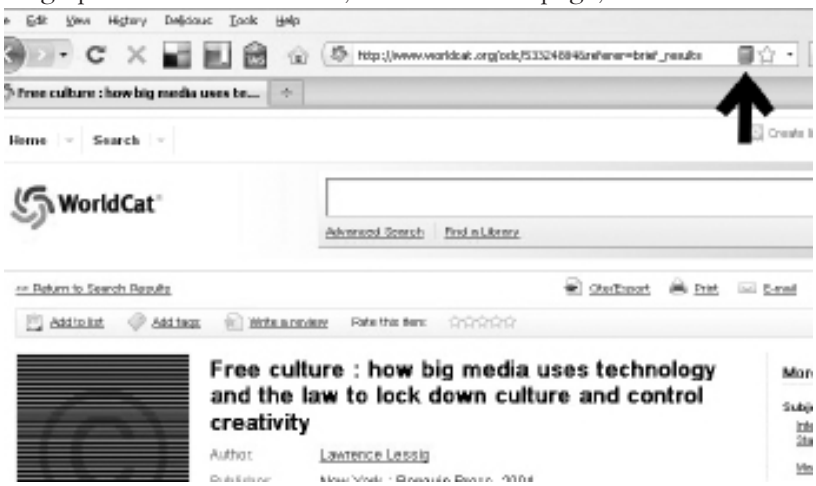


Figure 3.

This feature works well in nearly all library catalogs and article databases. It also recognizes bibliographic data from Amazon.com, nytimes.com, and other pages. Zotero detects many metadata standards, including COinS and embedded RDF, so nearly any Web site can be made Zotero-compliant.[3] Zotero can also save links or "snapshots" (local copies) of any Web page, even if it does not include citation metadata, and users can enter citations by hand. Zotero 2.0 includes the ability to

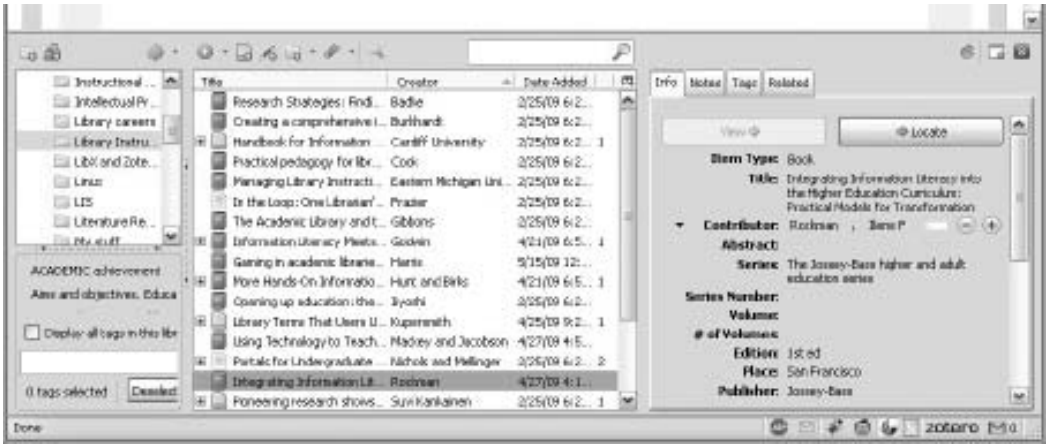


Figure 4.

enter an ISBN or DOI and retrieve a citation.

Researchers can organize saved citations into collections (like folders, but a citation can be in multiple collections), add tags, notes, and attach PDFs or images. All this information is saved to the Zotero library on the local computer, but Zotero 2.0 introduced the sync feature, which allows online storage and synchronizing the library among multiple computers.

Creating bibliographies

An optional word processing toolbar is available for Microsoft Word or OpenOffice. It allows the user to add citations to a document in any of several bibliographic styles. Zotero also creates a formatted bibliography, adding sources to the references list in the proper order as the writer cites them in the document. More than 1,000 styles are available for download, and Zotero can also import EndNote styles.

Zotero can also generate bibliographies without an existing word processing document. The user can right-click a collection or selected references and send them to the clipboard, a printer or an RTF or HTML file in the desired style. Users can also simply click and drag references into any text window: handy for creating bibliographies in a Google Doc.

Groups and social features

Zotero 2.0 includes a new group library feature. Any Zotero 2.0 user can create groups with shared libraries. Group membership may be open or closed, and libraries may be public (visible on the Zotero Web site) or private. Shared libraries appear in the browser's Zotero window below the personal library and are useful for collaboration or classes. Copy a reference from a personal library to a shared one, or vice versa, by simply dragging it.

Zotero has also added a profile feature allowing users to (optionally) share all or part of their libraries on zotero.org and generate an RSS feed. A friends feature allows you to follow colleagues and your favorite researchers. CHNM also plans an Amazon-style feature to recommend sources based on the content of your library.

Free as in kittens

A third kind of "free" sometimes mentioned

(continues on page 97)

("It came from Hollywood" continued from page 69)

of Literacy (New York: Routledge, 2007), 5–7.

2. "Summer of 4 Ft. 2," *The Simpsons: The Complete Seventh Season,* DVD, directed by Mark Kirkland (1996; Beverly Hills, CA: 20th Century Fox Home Entertainment, 2005).

3. Richard E. Mayer, "Cognitive Theory and the Design of Multimedia Instruction," in *Applying the Science of Learning to University Teaching and Beyond,* edited by Diane F. Halpern and Milton D. Hakel (San Francisco, CA: Jossey-Bass, 2002), 50.

4. R.W. Picard et al, "Affective Learning - a Manifesto," *BT Technology Journal* 22, no. 4 (2004): 254.

5. Association of College and Research Libraries, "Information Literacy Competency Standards for Higher Education," ALA, 2000, ala.org/ala/mgrps/divs/acrl/standards/standards.pdf.

6. Ibid.

7. *High Fidelity,* DVD, directed by Stephen Frears (2000; Burbank, CA: Touchstone Home Video, 2000).

8. ACRL, "Information Literacy."

9. The Columbia World of Quotations, s.v. [Newton, Isaac] 41418, www.bartleby.com/cgi-bin/texis/webinator/66search?search_type=auth&query=Newton%2C+Isaac (accessed January 6, 2010).

10. *The School of Rock,* DVD, directed by Richard Linklater (2003; Hollywood, CA: Paramount, 2004.)

11. ACRL, "Information Literacy."

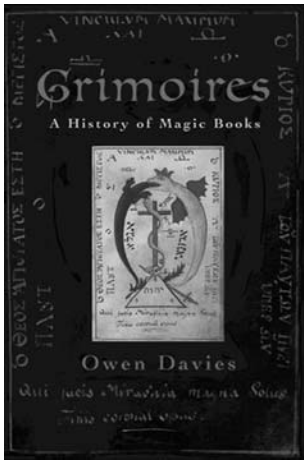
12. *The Ring,* DVD, directed by Gore Verbinski (2002; Universal City, CA: DreamWorks Home Entertainment, 2003).

13. Dan Richman and Andrea James, "Seattle P-I to Publish Last Edition Tuesday," *Seattlepi,* March 17, 2009, www.seattlepi.com/business/403793_piclosure17.html (accessed January 6, 2010).

mum, and ultimately turn a blind eye to the failure to ensure equal rights for Southern blacks. $39.95. University of North Carolina. 978-0-8078-3304-9.

The Data Deluge: Can Libraries Cope with E-science?, edited by Deanna B. Marcum and Gerald George (130 pages, November 2009), contains papers presented at the 2007 and 2008 International Roundtable for Library and Information Science in Kanazawa, Japan. E-science or cyberinfrastructure are terms for an emerging research methodology characterized by grid-computing technologies built to analyze huge data sets and globally distributed collaboration via the internet. The challenge for research libraries is finding a way to store, share, and preserve these data sets for a new generation of collaborative science applications. The situation is perhaps more difficult in the United States due to decentralized research enterprises, although contributors from Johns Hopkins University, University of California-San Diego, and the National Agricultural Library offer some useful models. $60.00. Libraries Unlimited. 978-1-59158-887-0.

Grimoires: A History of Magic Books, by Owen Davies (368 pages, May 2009), focuses on books that contain magical spells, charms, and rituals, from the ancient *Testament of Solomon* attributed to Hermes Trismegistus to Anton LaVey's *Satanic Bible*. Called *grimoires,* these books are important



not only for their descriptions of Western occult practices and philosophy, but also for the insights they provide into the interaction of Christian and Islamic cultures, the history of science and religion, the cultural influence of the book trade, the history of censorship and literacy, the expansion of Western ideas into the Third World, and the resurgence of occult lore in the 20th century. In addition to the standard grimoires like those written by Heinrich Cornelius Agrippa or attributed to Albertus Magnus, Davies explores such intriguing necromantic byways as European witchcraft and the papal inquisition, the popular *bibliothèque bleue genre* in 18th-century France, Mormon magic books, Obeah sorcery in the West Indies, Rosicrucians and the Order of the Golden Dawn, the Pennsylvania German *Long Lost Friend* and the *Books of Moses,* William Lauron Delaurence and occult publishing in Chicago, pulp esotericism in Germany, the dubious Voynich manuscript, H. P. Lovecraft's *Necronomicon,* and even the role of grimoires in the Harry Potter books and *Buffy the Vampire Slayer.* $29.95. Oxford University. 978-0-19-920451-9.

("Superpower . . ." continued from page 74)

in the context of open source software is "free as in kittens": free of up-front costs but requiring time, care, and upkeep. These two programs are particularly low-maintenance kittens, however, and (unlike most I've taken in) I feel they more than earn their keep. LibX requires some initial time investment as the library creates its custom edition, but once set up takes only minimal attention if you choose to tweak and add new search options. I've always found Zotero easier to use than EndNote, the researchers I work with love it, and in the last year or so I've watched it not just equal but surpass its commercial counterparts in useful features.

Notes

1. LibX, research.library.gsu.edu/libx.
2. Zotero, research.library.gsu.edu/zotero.
3. A full list of compatible sites is available at zotero.org/translators.