

**Zotero Everywhere:
Browser- and Machine-Independent Support for the Research Community**

First Year Report to the Andrew W. Mellon Foundation
December 2011

Sean Takats & Dan Cohen
Roy Rosenzweig Center for History and New Media
George Mason University

The first year of “Zotero Everywhere” has been a year of rapid development and expansion of Zotero into platforms and environments previously unavailable to the Zotero community. We are delighted to report that the project has generated a tremendous amount of excitement among researchers and students, as well as the librarians who support them. We hope that Zotero’s lengthening list of supported platforms, coupled with this community enthusiasm, will continue to drive Zotero’s growth and sustainability. In this report we outline some of the major achievements of the first year.

Independence from Firefox

Zotero Everywhere’s core desktop deliverable is a standalone Zotero application that runs on Windows, Mac, and Linux PCs without the Firefox web browser. We released an alpha version of this standalone application in December 2010. Based on the valuable feedback of early adopters, we heavily reworked this code into three public beta versions released between August and December 2011. Midway through 2011, we made the decision to synchronize the release schedule of the “classic” Firefox-based version of Zotero and the new standalone version. As a result, we fell slightly behind schedule as we fully merged the two code bases and development cycles, but the gains in simplifying our development have been substantial. We have also standardized our version numbering and are calling the current unified builds version 3.0, due to exit beta for full public release in January 2012.

At the heart of standalone Zotero is a new site translator architecture that is fully decoupled from the Firefox browser. This architecture was made available in limited but essentially functional form in January 2011, and progressive refinement over the following months have brought it to the brink of parity with the “classic” in-browser Firefox. In order to take full advantage of this new architecture, some minor rewriting of Zotero’s dozens of site translators is necessary, but this process is already underway and in no way hinders the public release of this code.

To interact with the new translator architecture described above, we have developed plugins with several popular web browsers to allow users to add items directly to standalone Zotero. In December 2010, we released alpha plugins for Apple Safari and Google Chrome, which

currently account for about 30% of the usage share of all web browsers. In August 2011, we released beta versions of these plugins, along with a new “plugin mode” for Firefox that allows Firefox users to add items to the standalone version of Zotero. With the addition of Firefox, we extended standalone Zotero’s reach to an additional 25% of potential usage share. Unfortunately, we encountered difficulty creating a dedicated Microsoft Internet Explorer plugin because the browser’s extension architecture proved too unwieldy and inflexible to accommodate all the functionality we provide for Chrome, Firefox, and Safari. Nonetheless, we remain committed to supporting Internet Explorer users -- who account for nearly 40% of the browser usage share -- and we have shifted our focus accordingly to the Zotero bookmarklet, described below.

Machine Independence

Beyond liberating Zotero users from Firefox, Zotero Everywhere also seeks to free them from dependence on any particular piece of hardware. In order to achieve this goal, we have undertaken major work on Zotero’s server code and infrastructure. Prior to Zotero Everywhere, the Zotero server API provided only read access to personal and group libraries. Over the last year, we have added write functionality to the API: first in private, internal form in December 2010; and later as a fully open public service in April 2011. In December 2010, we also added citation support to the API, allowing Zotero servers to return a properly formatted citation or bibliography for any library item. In 2011, we added on-demand file download to the API. As a result, Zotero users and third parties can programmatically access Zotero data to build a variety of applications or to perform computational analysis.

The most immediately visible change associated with the new API is zotero.org’s new library editing interface. Since August 2011, visitors to the completely redesigned Zotero website have been able to add, edit, and delete items, as well as search and organize their research libraries. In addition to permitting these dramatic improvements Zotero’s website, we have also seen a wide range of third parties begin to adopt the Zotero API for their own applications, including mobile clients for Google Android and Apple iOS, as well as for WordPress and other platforms.

The increased demands on our server infrastructure posed by this new functionality and Zotero’s growing user base forced us to adopt an entirely new approach toward managing hardware. In December 2010, we began transitioning the Zotero synchronization and API processes to cloud servers hosted by Amazon Web Services (AWS). In August 2011, we completed this transition with the migration of our remaining web servers to AWS, and we have since moved out of our commercial data center entirely. By adopting a fully virtual approach to servers, we have been able to add and remove computing power and storage dynamically to keep pace with our growth.

In order to move even beyond the major desktop-based web browsers, we proposed creating a bookmarklet to allow users to add items directly to the Zotero web server. Initially scheduled for release in February 2012, we accelerated development on the bookmarklet when it became clear that an Internet Explorer plugin would consume too many resources. Currently in private testing,

the bookmarklet already permits users to add items automatically from Internet Explorer 8 and 9, iPhone Mobile Safari, Google Android, and Opera.

Sustainability

The overarching goal of Zotero Everywhere is to secure Zotero's long-term sustainability through growth in user base and reduction of attrition for competing platforms and environments. We have seen revenue associated with Zotero storage grow around 100% year-over-year so far in 2011, and we continue to anticipate meeting the goal of full sustainability by 2013.

We look forward to the second year of this grant and thank the Andrew W. Mellon Foundation for its generous support of our work.

Sincerely,

Sean Takats
Dan Cohen
Roy Rosenzweig Center for History and New Media
George Mason University