



PLUG-INS AND E-JOURNALS: HOW BROWSER EXTENSIONS TRANSFORM ELECTRONIC JOURNAL CONTENT AND ACCESS

D. Kichuk. Electronic Resources Librarian, University of Saskatchewan Library, University of Saskatchewan, Saskatoon, Canada.

Introduction

In March, 2001, as a member of the Canadian National Site Licensing Project (CNSLP), the University of Saskatchewan Library added over 700 electronic titles to its journal collection. The CNSLP titles introduced a critical mass of electronic journals to library patrons, offering a complex and intriguing range of supplementary content and a transformation of the experience of reading scientific journals. Prior to the CNSLP, library patrons accessed relatively few electronic journals and a narrow range of delivery formats: ASCII, HTML, and the increasingly prevalent standard of Acrobat PDF files; supplementary content included inline image files and tables, and the occasional audio file. The CNSLP products included a new range of supplementary content attached to the journal article either as an inline link or as a supplementary file, transforming the opportunities for authors to present their research and for readers to read or interact with that research. The expanded list of required software plug-ins and add-ons included viewers and players: to access text files, 3-D images, animations, video clips, virtual reality, and chemical-structure data; to listen to audio files; or to launch interactive applications. This poster investigates plug-ins required to access supplementary content in CNSLP electronic journals and discusses implications for readers.

The Canadian Site Licensing Project (CNSLP)

The CNSLP is a collaborative national database licensing project. Phase I (2001-03), preceded by a year of planning and vendor negotiation, is a 3-year, CAN \$50 million pilot project jointly funded by a CAN \$20 million grant from the federal government's Canadian Foundation for Innovation (CFI) initiative, and a total of CAN \$30 million matching funds from provincial governments and participating consortium members - 64 academic institutions from across Canada. In Phase II (2004-05), the member institutions are committed to assume the full cost of the licenses or find new funding arrangements. CNSLP is a proof-of-concept project designed "to increase the quantity, breadth and depth of scholarly publications available to Canadian academic researchers, speed the take-up of electronic publication formats, and leverage Canadian universities' buying power and influence in the international scholarly publishing marketplace." (Press Release, 2001)." The project is limited in scope initially, to academic institutions and to primarily science, engineering, and medicine electronic resources, with the hopeful intention to broaden the project in the future once the project and member institution expertise and infrastructure have been developed.

In early February, 2001, the CNSLP Negotiating Committee announced its final product list - six electronic journal collections (ACS Web Editions, IDEAL, IOP Electronic Journals, LINK, MathSciNet, and RSC Online Journals) (see Table 1) (some with an archives as far back as 1993) and the citation database collection: the Web of Science (from 1998 to the present). The Library moved quickly to supplement the archive by acquiring the Web of Science back to 1990. All of these products, with the exception of MathSciNet, were new to the University of Saskatchewan Library.

Materials and Methodology

The investigation included six (6) CNSLP electronic journal collections. Each CNSLP resource was examined for the full range of supplementary content. The supplementary content included content embedded in the articles or attached as supplementary files. A systematic review was made of publishers' instructions to authors and system set-up instructions, where available. A detailed examination was made of lists of recommended browser add-ons and plug-ins on the product's web pages or within search results lists to identify additional required add-ons and download information.

Where free downloads were available, a selection of downloads were executed in order to access the supplementary content. If the download and viewing instructions were very complex or if there was a warning of possible problems, the download was not executed. Examples of articles including supplementary content that required the installation of common viewers were collected to illustrate the range of content and reading experience.

Canadian National Site Licensing Project (2001-2003)			
Product	URL	Vendor	Collection/E-Journals Type
ACS Web Editions	http://pubs.acs.org/	American Chemical Society (ACS)	e-Journal 30+
IDEAL	http://www.idealibrary.com/	Academic Press (AP)	e-Journal 200+
IOP Electronic Journals	http://iop.ore/	Institute of Physics (IOP)	e-Journal 34
LINK	http://link.springer-nv.com/	Springer Verlag	e-Journal 440+
MathSciNet	http://www.ams.org/mathscinet/	American Mathematical Society (AMS)	e-Journal 2
RSC Online Journals	http://www.rsc.org/is/journals/current/ejs.htm	Royal Society of Chemistry (RSC)	e-Journal 23
Web of Science	http://www.isinet.com/isi/products/citation/wos/index.html	Institute for Scientific Information (ISI) Database	-
TOTAL			700+

Table 1 - List of Canadian National Site Licensing Project products

Findings

The range of electronic journal article formats available for viewing or downloading was broader than the standard text-HTML-PDF triad. PostScript and TeX or LaTeX, standard formats within the scientific community, were also prevalent. While the amount of supplementary content is still relatively small for most of the electronic journals represented, the numbers are growing. "Born digital" electronic journals, such as *New Journal of Physics (IOP Electronic Journals)* or *CrystEngComm (RSC Online Journals)*, and journals in fields where supplementary content for model imaging appear routinely, for example - crystallography and physics (for example, the *Journal of Turbulence (IOP Electronic Journals)*, and *Crystal Growth and Design (ACS Web Editions)*) are the most likely to include supplementary content..

The initial list of publisher-recommended plug-ins and add-ons at the time CNSLP was first implemented in March, 2001 was extensive. That list continues to grow. Of particular interest are the multimedia and virtual reality plug-ins that permit a totally new content and reading experience never possible for scientific print journals.

Collection	Article Formats						
	ASCII Text	HTML	PDF	Post-Script	DVI	BibTeX	TeX
ACS Web Editions		✓	✓				
IDEAL		✓					
IOP Electronic Journals		✓	✓	✓			
LINK		✓					✓
MathSciNet	✓	✓	✓	✓	✓	✓	
RSC Online Journals		✓	✓				

Table 2 - List of article formats in CNSLP electronic journal collections

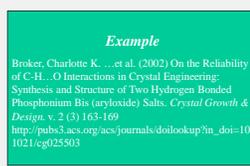
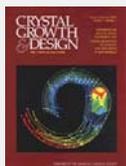


"Electronic media open up new dimensions for animated, interactive, or multimedia embellishments that go far beyond the limitations of the printed page."

Raney, R. Keith. (1998) Into a Glass Darkly. *The Journal of Electronic Publishing*. v.4 (2)

Plug-in/Add-on	CNSLP Electronic Journal Collections Plug-ins & Add-ons					
	ACS Web Editions	IDEAL	IOP Electronic Journals	LINK	MathSciNet	RSC Journals
Text/Acrobat/Postscript/TeX Document Viewers						
Adobe Acrobat Reader	✓		✓	✓	✓	✓
DVI (Device Independent) viewers				✓		
GSview/MacGS				✓		
IBM Techesplorer				✓		
Word	✓					✓
WordPerfect						✓
Image / Vector Graphics / Animations						
ChemDraw Net Viewer	✓					✓
PowerPoint Reader						✓
Multimedia						
QuickTime			✓			✓
Macromedia Flash	✓		✓			✓
Shockwave			✓			✓
Windows Media Player			✓			✓
Sound / Audio						
RealOne Player / RealPlayer			✓			✓
VRML / 3-D						
Chem3D Net Viewer	✓					✓
Chime	✓			✓		✓
COSMO Player						✓
ISIS/Draw	✓					✓
RasMol	✓					✓
WebLab Viewer	✓					✓
Utility						
Gzzip (GNU zip) / MacGzip			✓			✓
Stuffit						✓
Winzip / ZipIt (Mac)	✓		✓			✓

Table 3 - CNSLP Electronic Journal Collections Plug-ins / Viewers



Example

Broker, Charlotte K., et al. (2002) On the Reliability of C-H...O Interactions in Crystal Engineering: Synthesis and Structure of Two Hydrogen Bonded Phosphonium Bis (anion) Salts. *Crystal Growth & Design*. v.2 (3) 163-169. http://pubs.acs.org/journals/doi/lookup?in_doi=10.1021/cg02503c

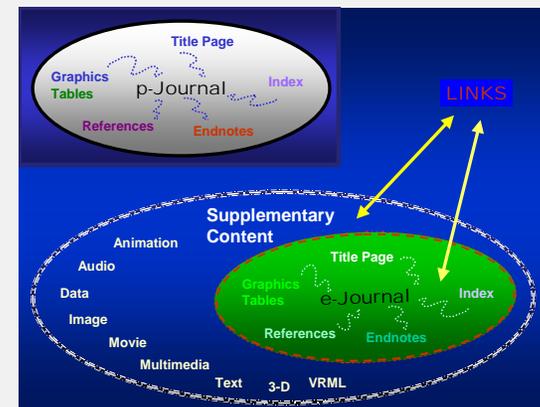


Figure 1 Reading the Print Journal and the Electronic Journal

Conclusion

Prior to the CNSLP, the Library workstations had a limited and ad hoc capacity to access Internet content. The only consistent viewer loaded on all workstations was the Adobe Acrobat Reader. In order to access supplementary content in CNSLP electronic journals, Library workstations and patron workstations at home or in the lab or office, required a full range of plug-in or add-on viewers and players installed. Public workstations required a complex set of add-on software to enable access to content in the Library's collection. The CNSLP represented a major breakthrough in the critical mass of the Library's online collection and in the transformation of the experience of reading and research in the Library.

Electronic journals engage the reader in a dynamic reading and research experience. The virtual xerox copy provided by online PDF format may on first glance hardly appear to alter the reading experience but for the absolute difference of 24x7 availability and remote access. HTML formats enable dynamic reading through hypertext linking. The reader navigates through a series of portals and linkages and back again, from text to multimedia and back to text. The CNSLP electronic journals with supplementary content in the form of inline or external image, data, animation, and interactive 3-D files create a dynamic, synchronous viewing experience far removed from reading a 2-dimensional print document. The evolution of electronic journals from the original plain ASCII text files, to HTML and untagged PDF formats, has now moved on to XML, structured PDF, and multimedia. The real potential of online delivery of research is only beginning to be explored. But it is not "there" yet.

The delivery of online content is still not integrated into a seamless presentation. Standards for online publication design and readability are not fully developed. The complexity and range of plug-ins and add-ons, their often narrow application and complex installation, and their frequent tendency to have bugs and technical programs are convincing evidence that the electronic journal is only in its first stage of development beyond online incunabula and xerox print replication. Still, even the briefest animated clip of a molecular structure represents a dramatic new opportunity and shift for communicating research. The conviction that the future of scholarly communication would lie in the potential of electronic journals was clear to many by the late 60s (Tenopir and King, 2000, 22). Some 40 years later, in 2001, the 64 members of the Canadian National Site Licensing Program normalized the alpha version of that potential and brought it routinely to the desktop of students and researchers in Canada.

References

Baptista, Ana Alice, Eloy Rodrigues, Altamiro Barbosa Machado. (1999) Online Publishing as a Support for Scholarly Communication in Dynamic Knowledge Communities. *Electronic Publishing '99: Redefining the Information Chain - New Ways and Voices. Proceedings of the ICCP/IFIP Conference held at the University of Karlskrona/Ronneby, Ronneby, Sweden, 10-12 May 1999*. Ed. By John W. T. Smith, Anders Ardo and Peter Linde. Wash.: ICCP. pp. 236-249.

Tenopir, Carol and Donald W. King. (2000) Towards Electronic Journals: Realities for scientists, librarians and publishers. *Special Libraries Association*. xxii, 488 pp.