

OPEN SOURCE SOFTWARE: BOON TO DIGITAL LIBRARY

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Abstract - The present article highlights the open source library management systems. The paper describes in brief about the feature of some of the open source library management software like Greenstone Digital Library, DSpace, Koha, E-Prints, NewGenlib, PhpMyLibrary, Greenstone, etc., which are useful for developing digital library and institutional repositories.

Keywords: Open source Software¹, Dspace², Koha³, E-Prints⁴, Advantages of open source software⁵.

1.INTRODUCTION:

Open source software is software that provides access to the source code, meaning that users are free to see how the product is made. Additionally, users have the right to modify the product (change the code) to their liking, experiment with different versions, and give away or resell the new product with the guarantee that they must also provide their source code, and so on. Modifying the product and redistribution are the two main components of open source.

2.OPEN SOURCE SOFTWARE:

Open source defines method of software development, that harnesses the power of distributed peer review and transparency of progress. This technique helps to provide better quality software's having higher reliability, flexibility with lower cost, and an end to the traditional vendor lock-in. The source code and rights that were normally reserved for copyright holders are now being provided under a free software license that permits developers / users to study, change, improve and at times also to distribute the software.

Definitions: Open source promotes software reliability and quality by supporting independent peer review and rapid evolution of source code (Kamble, 2012). To be certified as open source, the license of a program must guarantee the right to read, redistribute, modify, and use it freely" (Rich Christie, 1999).

In 1998, a group of individuals advocated that the term free software be replaced by open source software (OSS) as an expression which is less ambiguous and more comfortable for the corporate world. Software developers may want to publish their software with an open source software license, so that anybody may also develop the same software or understand how it works. Open source software generally allows anybody to make a new version of the software, port it to new operating systems and processor architectures, share it with others or market it. The aim of

open source is to let the product be more understandable, modifiable, duplicatable, reliable or simply accessible, while it is still marketable. The "open source" label came out of a strategy session held in Palo Alto in reaction to Netscape's January 1998 announcement of a source code release for Navigator (as Mozilla). A group of individuals at the session included Todd Anderson, Larry Augustin, John Hall, Sam Ockman, Christine Peterson and Eric S. Raymond. They used the opportunity before the release of Navigator's source code to clarify a potential confusion caused by the ambiguity of the word "free" in English. The 'open source' movement is generally thought to have begun with this strategy session. Many people, nevertheless, claimed that the birth of the Internet, since 1969, started the open source movement, while others do not distinguish between open source and free software movements. The Free Software Foundation (FSF), started in 1985, intended the word 'free' to mean "free as in free speech" and not "free as in free beer." Since a great deal of free software already was free of charge, such free software became associated with zero cost, which seemed anti-commercial.

4.ADVANTAGES OF OPEN SOURCE SOFTWARE:

- The availability of the source code and the right to modify it is very important as enables in the improvement and extend the lifetime of a software product.
- Source code availability also makes it much easier to identify errors, and to fix them.
- The right to redistribute modifications and improvements to the code, and to reuse other open source code, permits all the advantages due to the modifiability of the software to be shared by large communities.
- Continuous improvement does not require users to pay for it. There is no single entity on which the future of the software depends. This is a very common concern with proprietary software.
- There are fewer conflicting priorities due to marketing pressures. Usually open source software is delivered "when it is ready", and when the development team feels that its quality is good enough. This means that software usually does not need as many "service packs", updates and such, reducing the maintenance cost.
- It provides a new forum for democratic action, collaboration, mutual benefit without geographical or any other barrier/bias.

- It forces commercial software vendors to keep their product price at a reasonable level.

5.OBJECTIVE OF THE STUDY:

The objective of the present study is to look into the technologies and tools available in the open source world that can be used in improving the services within the libraries.

OPEN SOURCE SOFTWARE FOR LIBRARIES

Library Management Software is capable of managing all the functionalities of a library. It is suitable for small to big libraries viz. Schools, Colleges, Universities, medical libraries, legal libraries, corporate houses, charitable trust and others. There are quite a few open sources library management software available. One has to select the right kind of package depending on their specific need. Examples of some of these are as follows:

EVERGREEN SOFTWARE-

Evergreen is an enterprise-class library automation system that helps library patrons find library materials, and helps libraries manage, catalog, and circulate those materials, no matter how large or complex the libraries. As a community, our development requirements are that Evergreen must be: Evergreen is open source software, freely licensed under the GNU GPL Development priorities for Evergreen are that it be stable, robust, flexible, secure, and user-friendly.

EVERGREEN'S FEATURES INCLUDE:

- Circulation: for staff to check items in and out to patrons
- [Cataloging](#): to add items to the library's collection and input information, classifying and indexing those items.
- [Online public access catalog](#) (OPAC): a public catalog, or discovery interface, for patrons to find and request books, view their account information, and save book information in Evergreen "bookbags." The OPAC received a makeover in early 2009 with the new, optional skin, Craftsman.
- Acquisitions: for staff to keep track of those materials purchased; invoices, purchase orders, selection lists, etc.
- Statistical Reporting: flexible, powerful reporting for retrieval of any statistical information stored in the database.
- [SIP 2.0](#) support: for interaction with computer management software, self-check machines, and other applications.
- [Search/Retrieve via URL](#) and [Z39.50](#) servers

ABCD SOFTWARE:

ABCD, in English, is "Automation of libraries and Centers of Documentation". The name itself already expresses the ambition of the software suite to provide not only automation functions for traditional libraries but also other information providers such as documentation centers. It is developed by BIREME (WHO, Brazil) in collaboration with the Flemish Interuniversity Council, Belgium, and using UNESCO's ISIS database technology. This software provides flexibility and versatility. Any bibliographic Chinese Librarianship: an International.

ElectronicJournal, URL: <http://www.iclc.us/cliej/cl32dhamdhere.pdf> structure, including all types of digital resources, can be managed by this software and created by itself along with non-bibliographic structures..

ABCD FEATURES INCLUDE:

- The software is fully web-based, so can be used and managed from any current web-browser.
- Bibliographic records can be imported from external library catalogs / servers through Z39.50 facilities.
- Full MARC 21 compatibility with fields, indicators, and subfields defined by Library of Congress.
- OPAC with simple Google-like search as well as advanced search with Boolean operators, truncation, and field-limitation for all kind of databases, locally created or external.
- Access to both physical and electronic documents (local or on the internet) with the same interface.
- Library staff can define copy or edit any new database structure with existing ISIS-applications such as MARC, CEPAL, UNIMARC, and Dublin Core.
- Available in many languages like English, French, Spanish, Portuguese while more language versions are on the way.
- Import and export data in ISO-2709 format or text-format
- Contents and bibliographic resources, both local and external, can be added easily Without HTML-programming.

NEW GEN LIB:

Statistical report generation with graphical presentation of any defined set of variables in the databases New Gen Lib It is an Integrated web-based Library Management and Networking Solution. It was developed in 2007 by Kesavan Institute of Information and Knowledge Management and Verus Solutions Pvt. Ltd, India. It has single user (small library versions), multi user (single library LAN/Intranet version), multi user (simple library version), and multi user (multi library networking/consortium version). NewGenLib has not received any award so far. It is also under GNU

License and can be accessed its website address www.newgenlib.com.

NEW GEN LIB FEATURES INCLUDE:

- Android mobile and tablet capable
- Integration with Twitter helping send messages of transactions directly to users' Twitter accounts .
- In OPAC, a list of new arrivals can be seen in a user defined period.
- Flexibility of defining own search field in OPAC.
- Enhanced contents • Book jackets • Google preview
- Zotero compliant OPAC
- RSS Feeds in OPAC 8. Faceted Browsing (Refining search results).
- Suggestion for other books in the rack
- RFID supports
- Provision for frequently used predefined templates along with freedom of defining own customized data entry template .
- Simple spreadsheet -like cataloguing input format
- Icons for quick utility tools to merge catalog records, retrieve duplicates, update additional copies, edit catalog records and make a copy of the catalog record.
- Two useful utility icons - User information and item information for complete and detailed information of the item and user respectively
- Configurable SMS system - a proof of transaction.
- Integration with Gmail or paid mailbox account.
- Loan period can be in hours, days, or up to a particular day.
- Enhanced Report Module for generating in .csv format with a provision for wide customization.
- Provision for integrating with Vufind SOPAC
- Catalogue can be harvested through Google site map, and thus the visibility of the library can be further improved.

WINISIS:

The window version of the CDS/ISIS is called WINISIS developed and released by the UNESCO in June 1997 and has several additional useful features. The first window version was distributed for testing in May 1995 and the first WINISIS version officially released was version 1.31 launched in November 1998. WINISIS uses the same database structure as CDS/ISIS. Database created by DOS version of the CDS/ISIS system do not require any changes to be processed by the Windows version of this system. WINISIS, which is fully compatible with the MS-DOS version of CDS/ISIS, is designed for both current MS-DOS users who wish to shift to the windows environment, and for new users. It includes all the features of the MS-DOS version except some database utilities such as the database re-initialization. WINISIS is in c++, facilitating the portability level.

WINISIS FEATURES INCLUDE:

- Allow the user to build relational data bases
- An integrated application programming language(CDS/ISIS Pascal) and the CDS/ISIS Dynamic Link Library (ISIS_DLL)
- Availability of graphical user interface (GUI)
- Availability of new numerical and string functions.
- Compatibility between the DOS and Windows versions
- Guided search interface is available for inexperienced users of the package, apart from the standard search interface.
- Increased length of a format which can support up to 26,000 characters and its output is up to 64,000 characters.
- Maximum record size has been increased almost 4 times (30 KB in the Windows version as compared with 8 KB in the DOS versions)
- Powerful hypertext functions allow designing complex user interface.

PMB (PhpMyBibli) :

This is a fully featured open source integrated library system. The project that led to the development of this software was initiated by François Lemarchand in October 2002, Director of the Public Library of Agneaux. It is now maintained by PMB Services (a French Company). PMB has most of the functional modules essential for a library management system. The development of PMB was started in October 2002 by a librarian, François Lemarchand. He prepared the bases of cataloguing and the skeleton of the application. Later on Eric Robert, Gautier Michelin, Florent Tetart, Armelle This is a fully featured open source integrated library system. The project that led to the development of this software was initiated by François Lemarchand in October 2002, Director of the Public Library of Agneaux. It is now maintained by PMB Services (a French Company). PMB has most of the functional modules essential for a library management system. The development of PMB was started in October 2002 by a librarian, François Lemarchand. He prepared the bases of cataloguing and the skeleton of the application. Later on Eric Robert, Gautier Michelin, Florent Tetart, Armelle

PMB FEATURES INCLUDE:

- PMB is very functional ILS, with all necessary basic functions of library automation especially with regard to: integration of Web 2.0-oriented features and other patron-based Web services: (review of documents, add comments and tags from users);
- federated search connectors for Z39.50 and OAI;
- safeguarding the security of all data and full system restore from the safety backup;

- the creation of item records on the fly for documents with no bar code

KOHA:

The name Koha comes from a Maori term for a “gift” or “donation”. The development of Koha began in 1999, funded by a group of libraries in rural New Zealand that found proprietary software expensive and lacking some needed features. Koha is designed to work with a minimum of hardware resources. It runs on the Linux operating system in conjunction with the Apache Web server, uses the popular MySQL open source database management system, and is written in Perl. The Koha ILS can also be installed on Windows operating system but with a series of additional modules. Migration of data from one ILS to Koha can be done easily.

KOHA FEATURES INCLUDE:

- A full featured modern integrated library software (ILS).
- Award winning and free/Open-source Software.(no license fee).
- OS independent any operating system. Linux, Unix, Mac.
- Web based. Web-based Interfaces. We can integrate with website.
- Full MARC21 and UNIMARC support for professional cataloguing.
- Multilingual and multi-user support
- Library-Standards-Compliant. Industrial standards & protocols.
- Z39.50 server.
- Customizable web based opac.circulation system.
- Online reservation.
- Full catalogue, circulation, acquisitions, library stock management.
- Web based OPAC, public to search the catalogue.
- Major industry-standard database type (text, RDBMS), SQL, MYSQL.
- Serial management module
- Print your barcode.
- Export and import records, ISO2709.

DSPACE:

DSpace is the software of choice for academic, non-profit, and commercial organizations building open digital repositories. It is free and easy to install "out of the box" and completely customizable to fit the needs of any organization. DSpace preserves and enables easy and open access to all types of digital content including text, images, moving images, mpegs and data sets. And with an ever-growing community of developers, committed to continuously expanding and improving the software, each DSpace installation benefits from the next.

DSPACE FEATURE INCLUDES:

Special features of DSpace digital library software are

- DSpace allows contributors to limit access to items in DSpace, at both the collection and the entity item stage.
- Authentication is provided through user passwords, X509 certificates or LDAP. Access controls can be administered by only authorized users.
- DSpace can store and provide on-line browsing ability for independent, non-dynamic HTML documents.
- The OAI-PMH is a protocol for metadata harvesting allows sites to programmatically recover or 'harvest' the metadata from numerous sources, and offer services using that metadata, such as indexing or concerving services.
- The collection and communities in DSpace are created via web interface.
- Import and export for communities, collections and item is supported by DSpace.
- DSpace are provide all statistical report/summary for administrated usages
- To help in creation persistent identifier for every item DSpace makes use of handle systems global resolution features.
- DSpace ensure that data can be exchanged with other slandered acquiescent system, such as MARC21.

FEDORA:

Fedora is a center for innovation in free and open source software, and creates a community where developers and open source enthusiasts come together to advance free and open source software. The Fedora community contributes everything it builds back to the free and open source world and continues to make advances of significance to the broader community. Fedora is a Linux based operating system that provides users with access to the latest free and open source software, in a stable, secure and easy to manage form members of its community for the management and dissemination of digital material created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of the digital materials including long term preservation. An effective digital preservation and institutional repository of necessity represents collaboration among libraries, information technologies, archives and record managers, faculty and University administrators and policy makers.

FEDORA FEATURES INCLUDE:

- Fedora has a reputation for focusing on innovation, integrating new technologies early on and working closely with [upstream](#) Linux communities. Making changes upstream instead of specifically in Fedora ensures that the changes are available to all [Linux distributions](#).
- Fedora has a relatively short life cycle: version X is supported only until 1 month after version X+2 is released and with approximately 6 months between most versions, meaning a version of Fedora is usually supported for approximately 13 months.
- Fedora users can upgrade from version to version without reinstalling.
- The default desktop in fedora is the GNOME desktop environment and default interface is the GNOME shell. Other desktop,environments ,including KDE,plasma,xfce,LXDE,MATE and CINNAMON,are available and can be installed .
- Fedora uses the RPM package management system.
- Security is also important in Fedora with one specific security feature being [Security-Enhanced Linux](#), which implements a variety of security policies, including mandatory access controls, and which Fedora adopted early on.

EMILDA

Emilda is an integrated library system that consists of the features, such as, an OPAC, circulation and administration functions, Z39.50 capabilities and MARC compatibility. MARC compatibility is achieved using Zebra in conjunction with MySQL. The system is released under GNU General Public License version 2.0 (GPLv2). It is operating system independent. In the beginning, this software had shown good development. The release activity shows that since June 2005, there have been no further releases , which shows that there is no development in this project.

EMILDA FEATURE INCLUDES:

- Full featured Web-OPAC, allowing comprehensive system management from virtually any computer with an Internet connection.
- Template based layout allowing anyone to alter the visual appearance of Emilda.
- 100% MARC compatibility using the Zebra Server from Indexdata as backend server.
- Extensive configuration made easy with the Emilda Configuration, allowing full customization of the system.

EPRINTS:

The EPrints software has the largest and most broadly distributed installed base of any of the repository software systems described here. It is generic archiving software developed under University of Southampton. It is intended to create a highly configurable web-based archive and is a platform for building repositories of research literature, scientific data, student theses, project reports, multimedia artifacts, teaching materials, scholarly collections, digitized records, images, audio, exhibitions and performances, anything that can be stored digitally, etc.

EPRINTS FEATURES INCLUDE:

Special features of EPrint digital library software are

- EPrints provides web base edge the makes easy to use and administer.
- Searching in EPrints allows scanning each of the metadata field types in the database by using simple or advance search.
- EPrint archive can use any metadata schema is being provide by the administrator. The administrator decides what metadata held about EPrints item .
- EPrint uses traditional technologies and runs on pure open sources system. It uses MySQL, Apache database and web server.
- EPrints is programmed by using the scripting language –Perl
- Three user roles, administrator role controls all back-end option, editor role reviews submission, metadata etc. author role allows submission of document and management of previously submitted
- EPrint is fully interoperable with Open Archives initiative Protocol for Metadata Harvesting
- PDF, HTML, JPEG, TIFF, MP3, AVI etc. file formatted supported on EPrint

GREEN STONE LIBRARY:

The Greenstone digital library software is an open-source system for the construction and presentation of information collections. It builds collections with effective full-text searching and metadata-based browsing facilities that are attractive and easy to use. Moreover, they are easily maintained and can be augmented and rebuilt entirely automatically. The system is extensible: software “plugins” accommodate different document and metadata types. Greenstone is a tool for creating and managing digital library collections. Running on Windows as well as various flavors of UNIX, it provides the means to easily create searchable and browsable interfaces to digital library collections via the Web. It also enables implementers to save their collections to CDs. Thus the digital library collections can be distributed to people with poor or not Internet access.

GREEN STONE LIBRARY FEATURES INCLUDE:

- Widely accessible : Collections are accessed through a standard web browser
- Multi-platform: Collections can be served on Windows and UNIX, with an external Web server or (for Windows) a built-in one.
- Metadata-driven: Browsing (and, if desired, searching) indexes are built from metadata. Metadata may be associated with each document or with individual sections within documents. It must be provided explicitly (often in an accompanying XML or spreadsheet file) or derivable automatically from the source documents.
- Extensible: Plugins can be written to accommodate new document types. Classifiers can be written to create new kinds of browsing indexes based on metadata.
- Multi-language: Unicode is used throughout and is converted on-the-fly to an encoding supported by the user's Web browser. Separate indexes can be built for different languages: a plug-in allows automatic language identification for multilingual collections.
- International: The interface is available in multiple languages: new ones are easy to add.
- Large-scale: Collections containing millions of documents, and up to several gigabytes, have been built.
- Full-text searching is fast. Compression is used to reduce the size of the indexes and text Z39.50
- Compatible: The Z39.50 protocol is supported for accessing external servers and for presenting Greenstone collections to external clients.

6.CONCLUSION:

OSS has been found very useful in various library operations. The OSS are a solution to reduce the cost. Libraries can make use of open source software for managing digital contents effectively. This process benefits both the library staff and the users as it reduces the level of job stress on the staff and enhances remote and timely provision of up-to-date information to the users.

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