

OPEN SOURCE SOFTWARE SPECIAL REFERENCE TO LIBRARIES

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Abstract

The paper while giving the information to introduction of the concept, describes the open source Software (OSS) and explains the meaning of the term OSS, Definition the OSS used to explain it and also elaborates some of the important issues with reference to the explanation of the OSS. The paper enumerates the important characteristics of the OSS and Advantage and Disadvantage It describes important OSS, being presently used worldwide with special reference to the popular OSS used in Libraries Like as Library Automation Software Ex. Koha, Newgenlib, Evergreen and Digital Library Software Ex. Greenstone, Dspace, Eprints, Fedora, Web Publishing Ex. Wordpress, Drupal and other computer programmes Ex. Ubuntu, Firefox, Thunderbird, GIMPshop, NVU (N-view) , PDF Creator

Keywords: software's, open source, library science

1. INTRODUCTION

Open- source software (OSS) is computer software with its source code available to the general public for use as is or with modification and made presented with a license in which the copyright holder provides the rights to study, change and distribute the software to anyone and for any purpose. This software classically does not require a license fee.

According to scientists who studied it, open- source software is an important example of open collaboration. Open source software development or collaborative development from many independent sources, generates an increasingly more diverse scope of design perspective than any one company is capable of developing and sustaining long term.

Open source software is unique in that it is always released under a license that has been certified to meet the criteria of the Open Source Definition. These criteria include the right

- ❖ Redistribute the software without restriction
- ❖ Access the source code
- ❖ Modify the source code
- ❖ Distribute the modified version of the software

Source code is a particular language that allows software developers to create and modify computer programs. If you do not have legal access to the source code, then the program cannot be transformed or moved to a dissimilar type of computer.

Open source software is free for anyone to have, more importantly not only is the software is free for anyone to have; more important, not only is the software free, but it is also free for anyone to copy, hack, and modify this.

1.1 SOME EXAMPLE OF OPEN SOURCE SOFTWARE

- ❖ Accounting - SQL-Ledger
- ❖ Anti-virus - clamAV
- ❖ Database system- LDAP, MySQL (Database)

PostgreSQL (relational database with ability to be stored procedures

- ❖ Knowledge Management – Plone (Open source content management system) Knowledge Tree
- ❖ Domain Name Servers - Bind Power DNS
- ❖ Telephony - Asterisk, A Phone system (PBX) that also supports Voice

Over IP Technology , QMail, Sendmail

- ❖ File Servers - FreeNAS, OpenFiler, Samba

1.2 OTHER VALUABLE SYSTEMS (SERVERS &DESKTOPS)

S.No.		
1.	Apache, Mozilla’s Firefox	HTTP Web Server
2.	CentOS	Linux Distribution from Red Hat’s development efforts
3.	Fedora	Linux desktop system
4.	JBoss	J2EE server for Enterprise Java Development
5.	Slackware	Linux distribution
6.	Tomcat	Java servlet container
7.	Ubuntu	A Linux desktop operating system
8.	Zope	Content management system and portall
9.	PHP	Scripting Language
10.	Python	Programming language

1.3 PRODUCTIVITY SOFTWARE

S.No.		
1.	Evolution	Calendar, contact manager and e-mail client
2.	Firefox	Web browser
3.	Gimp	Image manipulation program
4.	Open Office	Word processor, spreadsheet

5.	Thunderbird	e-mail client, news aggregator
6.	Programming Languages	C, C++, Mono, PHP, Python, Perl, Ruby, TeL
7.	Spam Filtering	AmavisD, PostGrey, SpamAssign
8.	Routing/Networking	DHCPD, IPTables, PFSense
9.	Virtualization	KVM, Xen

1.4 OPEN SOURCE AND DEVELOPERS

OSS projects are group effort opportunities that get improved skills and construct connections in this field. Developers must be competent with standard tools of open – source development.

S.No.		
1.	Communication tools	Email, real-time messaging, forums, and wikis help developers to discover solutions or bound ideas off each other.
2.	Distributed revision control system	When multiple developers in different geographical locations modify data and files, these systems supervise the different versions and updates.
3.	Bug trackers and task lists	Allow large- scale projects to monitor issues and keep track of their fixes.
4.	Testing and debugging tools	Automate testing during system integration and debug other programs

2 ADVANTAGES OF OPEN SOURCE SOFTWARE

In the present day open source software has develop into critical for approximately every organization. Approximately everything requires open source software, be it telecommunication systems, inventory, accounting, personal productivity applications, contact management and operating systems amongst others.

Open source software can have a most important impact on complete organization. There are a number of advantages of using open source software. The subsequent are a list of the advantages of opting for open source software.

2.1 LESSER HARDWARE COSTS

In view of the fact that Linux and open source solutions are easily portable and compressed, it takes lesser hardware power to carry out the same tasks after compared to the hardware power it takes on servers, such as, Solaris, Windows or workstations. With this less hardware power improvement, you can even use cheaper or older hardware and still get the required results.

2.2 HIGH-QUALITY SOFTWARE

Open source software is mainly high-quality software. Use the open source software, the source code is accessible. Most open source software is well-designed. Open source software can also be economically used in coding. These reasons make open source software a perfect selection for organizations.

2.3 NO VENDOR LOCK-IN

IT managers in organizations face invariable irritation when dealing with vendor lockins. Be short of portability, expensive license fees and inability to customize software are some of the other disadvantage. Using open source software gives you more freedom and you can successfully address all these disadvantages.

2.4 INTEGRATED MANAGEMENT

Through using open source software, you can benefit from integrated management. Open source software uses technologies, such as, common information model (CIM) and web based enterprise management (WBEM). These high-end technologies enable you to integrate and combine server, application, and service and workstation management. This integration would result in efficient administration.

2.5 SIMPLE LICENSE MANAGEMENT

Open source software, enables you to install it a number of times and also use it from every location. You will be free from monitoring, tracking or counting license compliance.

2.6 LOWER SOFTWARE COSTS

Using open source software can help you minimize your expenses. You can save on licensing fees and maintenance fees. The only expenses that you would encounter would be expenditure for documentation media and support.

2.7 ABUNDANT SUPPORT

You will get enough support when you use open source software. Open source support is mainly freely available and can be without problems accessed through online communities. There are also many software companies that offer free online help and also mixed levels of paid support. Most organization that creates open source software solutions also provides maintenance and support.

2.8 SCALING AND CONSOLIDATING

Linux and open source software can be simply scaled. With mixed options for clustering, load balancing and open source applications, such as email and database you can enable your organization to either scale up and achieve higher growth or consolidate and achieve more with less.

3. DISADVANTAGES OF OPEN SOURCE SOFTWARE

The major disadvantage of open –source software is not being uncomplicated to use. Open-source operating systems approximating Linux cannot be learned. They necessitate effort and probably training from your side before you are able to master them. You may need to employ a trained person to make things easier, but this will incur additional costs.

There is a deficiency of applications that run both on open source and proprietary software therefore switching to an open-source platform involves a compatibility investigation of all the other software used that run on proprietary platforms. There are many incomplete parallel developments on open source software. This creates confusion on what functionalities are present in which versions. Finally a lot of the latest hardware are incompatible to the open-source platform

3.1 DIFFICULTY OF USE

Some open source applications may be complicated to set up and use. Others may lack user-friendly interfaces or features that your staff may be recognizable with. This can influence productivity and put off your staff from adopting or using the programs with ease.

3.2 COMPATIBILITY ISSUES

Many types of proprietary hardware need particular drivers to run open source programs, which are frequently only available from the equipment manufacturer. This can potentially add to the cost of your project. Even if an open source driver exists, it may not work with your software as well as the proprietary driver.

3.3 LIABILITIES AND WARRANTIES

With proprietary software, the developer frequently provides indemnification and guarantee as part of a standard licence agreement. This is because they have full control and copyright over the product and its fundamental code. Conventional open source software licences classically contain only limited warranty and no responsibility or infringement indemnity protection.

3.4 HIDDEN COSTS

Software that is free up- face but later costs money to run can be a main burden, particularly if you haven't careful these hidden costs from the outset.

4. OPEN SOURCE SOFTWARE SPECIAL REFERENE TO LIBRARIES

4.1 LIBRARY AUTOMATION

4.1.1 KOHA: INTEGRATED LIBRARY SYSTEM

Koha is an open source Integrated Library System (ILS) used world-wide by public, school and special libraries. Koha is web-based ILS, with a SQL database (MySQL prefer) backend with cataloguing data stored in MARC and easy to get to Z39.50 or SRU. The user interface is very configurable and adaptable and has been translated into many languages

S.No.	Koha FREE LIBRARY SYSTEM	
1.	Year	Created in 1999 by Katipo Communications for the Horowhenua Library Trust in New Zealand and the first installation went live in January 2000.
2.	Developer	Koha Community
3.	Initial release	January 2000
4.	Stable release	17.05.01/ June23, 2017
5.	Preview release	17.05.00/ May 31, 2017
6.	Repository	Github.com/koha-Community/Koha
7.	Written in	Perl
8.	Operating System	Linux
9.	Type	Integrated Library System
10.	License	GNU General Public License V3
11.	Website	Koha-community.org

4.1.2 NewGenLib : NEW GENERATION LIBRARY

NewGenLib is an outcome of collaboration between Verus and Kesavan Institute of Information and Knowledge management. NGL is developed and maintained by Verus Solutions and Kesavan Institute has provided the domain expertise.

NewGenLib is an integrated library management system developed by Verus Solutions Pvt Ltd. Domain knowledge is provided by Kesavan Institute of Information and Knowledge Management in Hyderabad, India. NewGenLib version 1.0 was released in March 2005. On 9 January 2008, NewGenLib was declared free and open source under GNU GPL. The Latest version of NewGenLib is 3.1.1 released on 16 April 2015. Many Libraries across the globe (mainly from the developing countries) are using NewGenLib as their Primary Integrated Library Management System as seen from the NewGenLib discussion forum.

S.No.	NewGenLib FREE LIBRARY SYSTEM	
1.	Year	2005
2.	Original Author	Siddhartha Errabolu and L.J. Haravu
3.	Developer	Verus Solutions
4.	Initial release	March 2005
5.	Written in	Java
6.	Operating System	Linux, Windows
7.	Type	Integrated Library System
8.	License	GNU General Public License V
9.	Website	Verussolutions.biz

4.1.3 Evergreen

Evergreen is an open source Integrated Library System (ILS) initially developed by the Georgia Public Library Service for Public Information Network for Electronic Services (PINES) a state-wide resource sharing consortium with over 270 member libraries.

PINES the Evergreen ILS is deployed worldwide in approximately 1800 libraries and is used to power a number of state-wide consortial catalogs.

In 2007 the original Evergreen development team software Equinox Software which provides custom support development migration training and consultation for Evergreen.

S.No.	Evergreen (Software)	
1.	Year	2006
2.	Developer	Georgia Public Library Service (GPLS) Public Information Network for Electronic Services (PINES) and the Evergreen Community
3.	Initial release	September 2006
4.	Repository	Git.evergreen-ils.org/Evergreen.git
5.	Written in	C,Perl, XUL, JS
6.	Operating System	Linux
7.	Platform	Cross-Platform
8.	Available	English
9.	Type	Integrated Library System
10.	License	GNU General Public License
11.	Website	Evergreen-lis.org

4.2 DIGITAL LIBRARY

4.2.1 GREENSTONE DIGITAL LIBRARY SOFTWARE

Greenstone is a software system which helps libraries, Universities and other public bodies build digital library collections and services: Greenstone is digital library software developed by the New Zealand Digital Library Project at the University of Waikato, New Zealand. It is a suite of software for building and distributing digital library collections that provides a way of organizing information and publishing it on the Internet and on removable media i.e. (CD-ROM/DVD). The aim of the Greenstone is to empower users, particularly universities, libraries and other public service institutions throughout the world, to build their own digital library collections in the field of education, science and culture. The software is distributed in cooperation with UNESCO and the Human Info NGO. UNESCO has been promoting Greenstone since 2000 and since then arranging user testing, helps with internationalization and workshops on Greenstone. The first version of Greenstone was made available during 1997 under the GNU Public License .

Greenstone has been very popular in developing countries as it is very easy to create collections in Greenstone as well as it has one of the important feature of exporting collections on CD-ROM, this has been found very useful where Internet connectivity are

not yet available. It has helped libraries to carry whole collection on CD-ROM and the CD-ROM collections operate on a standalone PC under Windows 3.X, 95, 98, and NT or Linux installations are there.

S.No.	Greenstone Digital Library Software	
1.	Year	1997 first version of Greenstone
2.	Developed by	Waikato University, New Zealand, in association with UNESCO and the Human Info NGO
3.	Distributed	Free, Under a GNU GPL license
4.	Computer requirements	Low technical requirements, Runs on many different computers: All Windows, Mac OS-X and Unix/Linux, and can run on Laptops
5.	Metadata	Supports wide variety of metadata options, including Dublin Core and OAI-PMH, and Choice of indexing methods
6.	Data exchange	Can exchange collections or individual items with the DSpace system or in METS format
7.	Documentation	Particularly complete and detailed documentation., including a user created wiki and a blog for new information
8.	Languages	Gives particularly good multilingual Support. All material is available in four 'core languages' English, French, Spanish and Russian and the system interface is translated into over 50 Languages
9.	Examples	Over 60 examples can be seen at http://www.greenstone.org/examples
10.	Repository	Svn.greenstone.org/main/trunk/greenstone3/
11.	Operating System	Cross-platform
12.	Type	Digital Libraries
13.	Website	Greenstone website http://www.greenstone.org

4.2.2DSpace

DSpace is a digital repository system. DSpace helps in creation of digital repositories in many different environments. It is mostly strong on aiding long-term digital maintenance.

- Institutional Repositories
- Learning Object Repositories
- Open source development model
- BSD(Barclay Distribution License) License

Captures, stores, indexes, preserves and redistributes on organization research material in digital formats. Research institutions worked wide use Dspace for a variety of digital archiving needs- from institutional repositories(IR) to , learning objects repositories or electronic records management and more , Dspace is a Digital Repository System

D-Space helps in creation of digital repositories in many different environments, not just libraries; it is particularly strong on aiding long –term digital preservation. DSpace is an open source digital library software developed jointly by MIT libraries and HP labs. DSpace provides tools for management of digital assets, and is commonly used for building institutional repositories.

DSpace helps to create, index and retrieve various types of digital contents which include research articles, grey literature, theses, cultural materials, 3D digital scans of objects, photographs, films, audio/videos, scientific datasets, institutional records, educational materials and other forms of content. DSpace was established to capture, preserve and communicate the intellectual output of an institution’s faculty and researchers through central place.

The collection in DSpace is organized into communities, collections and items. The communities in DSpace include a high-level organizational structure whose only purpose is to divide collections into related groups. An item is a deposited object of any type: a published article, an image, audio, or video file, notes, a presentation, etc. DSpace is specially designed for digital preservation support for all the documents that are added into the repository in a simple fashion .

S.No.	DSpace Digital Library Software	
1.	Year	2002 first version of DSpace
2.	Developed by	The Libraries of the Massachusetts Institute of Technology and Hewlett Packard Laboratories (USA), Duraspace
3.	Distributed	Free, under a BSD license
4.	Computer requirements	Unix/Linux s
5.	Metadata	Dublin Core and OAI-PMH
6.	Data exchange	Can exchange collections or individual items with the DSpace system, or in METS format
7.	Documentation	Particularly complete and detailed documentation, including user created wiki and know how guides and video guides
8.	Languages	Limited non-English Capability, being developed through translations provided by users
9.	Repository	Svn.greenstone.org/main/trunk/greenstone3/
10.	Developments status	Active
11.	Written in	Java
12.	Operating System	Cross-platform
13.	Type	Institutional repository software
14.	Examples	A list of all known, live DSpace instances

		http://wiki.dspace.org/index.php/DSpaceinstances
15.	Website	DSpace website http://www.dspace.org G Doctor and S Ramachandran, DSpace@IBSA:knowledge sharing in a management institute, VINE: Journal of Information and Knowledge Management Systems,2008,38(1), 42-52

4.2.3 EPrints

EPrints helps quick and easy creation and management of institutional digital repositories. GNU EPrints is generic archive software developed by the University of Southampton. It is future to create a highly configurable web-based repository. EPrints series began in early 2000 and EPrints 1.0 was released during November 2000 with OAI 0.2 support. The project was initially sponsored by CogPrints, but is now supported by Joint Information Systems Committee (JISC) , as part of the Open Citation Project, and by NSF. When first version of EPrints was released it became the first and one of the most broadly used free open access, institutional repository software for archiving preprints and post prints of faculty members. EPrints is an open source software for building open access repositories that are compliant with the Open Archives Initiative Protocol for Metadata Harvesting. EPrints is mainly used by many organizations for building institutional repositories.

The EPrints repository software has been developed to address the growing Demands on repositories to accommodate a wider variety of digital objects and metadata, to put together with a wider range of services and applications and to support higher deposit rates to provide the requirements of the whole institution. It is a simple digital library software can be extensively configured to accommodate the needs of academics and researchers designed at dissemination and Reporting.

EPrints version 3 was officially released on 24th January 2007 and was described by its developers as a major leap forward in functionality, giving more control and flexibility to repository managers, depositors, researchers and technical administrators. The latest version of EPrints addresses high metadata quality support by making data entry easier and range of import facility to import objects from other services or data sources.

S.No.	EPrints	
1.	Year	2000 first version of EPrints
2.	Developed by	School of Electronics and Computer Science, University of Southampton, UK
3.	Distributed	Free, under a GNU GPL license
4.	Computer requirements	Unix/Linux systems and some Windows systems

5.	Metadata	Variety of record formats are supported, including Dublin Core and OAI-PMH
6.	Data exchange	Can import and export records to from a variety of metadata formats and bibliographic formats
7.	Documentation	Extensive documentation, including a user created wiki and video guides
8.	Languages	Has been translated into 15 non-English languages
9.	Repository	Github.com/eprints.git
10.	Developments status	Active
11.	Written in	Perl
12.	Operating System	Cross-platform
13.	Type	Institutional repository software
14.	Examples	A list of repositories using EPrints (over 260) is at http://www.eprints.org/software/archives
15.	Website	EPrints website http://www.eprints.org

4.2.4 Fedora

Fedora provides a toolbox for growth of digital libraries and repositories and other applications such as open access journal publishing. Very flexible and able to contract with any kind of digital material and to address issues such as digital preservation but must be modified each application.

Fedora digital object repository management system is based on the Flexible Extensible Digital Object and Repository Architecture (Fedora). It is an open source digital content repository service, which provides a flexible tool for managing and delivering complex digital objects. Fedora provides interfaces for creation, management, and dissemination of contents stored within a repository. Fedora software development began in 1997 as a DARPA and NSF funded research project at Cornell University. The University of Virginia and Cornell University jointly developed Fedora with funding provided by a grant from the Andrew W. Mellon Foundation. The software is flexible sufficient for serving variety of digital documents with different functionalities such as digital asset management, institutional repositories, digital archives, content management systems, scholarly publishing enterprises, digital libraries etc. Fedora 1.0 was released in May 2003, with future releases following approximately every quarter with added functionality and corrected bugs discovered by users and the Fedora development team. In June 2004, the Andrew W. Mellon Foundation funded Fedora Phase 2 for an added 3 year project.

Fedora model is a easy model which allows all objects to be managed in a consistent manner in a Fedora repository. It is the robust integrated repository centered platform that enables the storage, access and management of all kinds of digital content and offer information and services for communities such as scholars, artists, educators, Web innovators, scientists, librarians, publishers, archivists, publishers, records managers, museum curators or anyone who presents, accesses, or preserves digital content, and software developers who work on open source Web and project content technologies. The

system is designed in such a way that Complete featured institutional repositories and other interoperable web based digital libraries can be built.

Primary version of Fedora was released on 16th May 20003.

S.No.	Fedora Software	
1.	Year	2003 first version of Fedora
2.	Developed by	Virginia University and Cornell University (USA) Fedora Project (Sponsored by Red Hat)
3.	Distributed	Free, Under a Apache license
4.	Computer requirements	Available on a variety of systems
5.	Metadata	Dublin Core and OAI-PMH; other formats specified as needed
6.	Data exchange	Flexible, specified as needed
7.	Documentation	Limited documentation of the model and facilities
8.	Languages	Basic system is English only, users would have to translate for their own system
9.	OS family	Unix-like
10.	Source model	Open source
11.	Marketing target	Desktop, Workstation, Server, Cloud
12.	Package manager	RPM
13.	Platforms	I686,x86-64,ARM-hfp, ARM AArch64, PPC64le, IBM Z, MIPS-64el, MIPS-el,RISC-V
14.	Kernel type	Monolithic (Linux)
14.	Userland	GNU
15.	Default user interface	GNOME
16.	License	Various free software licenses, plus proprietary firmware files
17.	Examples	Detailed examples of use of Fedora in libraries, repositories, journal publishing at http://www.fedora-common.org/about/examples/usecases/
18.	Website	Fedora website http://www.fedora.info

4.3 WEB PUBLISHING

4.3.1 Wordpress

WordPress is a free and open-source content management system (CMS) based on PHP and MySQL. WordPress is installed on a web server that is any part of an Internet hosting service or a network host in its own right. The initial case may be a service like WordPress.com for example and the second case could be a computer running the software package WordPress.org. A limited computer may be used for single-user testing

and learning purposes. Features enclose a plugin architecture and a template system. WordPress was released on May 27,2003 by its founders, Matt Mullenweg and Mike Little as a fork. Word Press is released under the GPLv2 (or later) license.

S.No.	Wordpress	
1.	Year	2003
2.	Developer	WordPress Foundation
3.	Initial release	May 27, 2003
4.	Repository	Core.trac.wordpress.org/browser
5.	Written in	PHP
6.	Operating System	Unix-like, Windows
7.	Type	Blog software, Content Management System, Content Management Framework
8.	License	GNU GPLv2+(4)
9.	Website	Wordpress.org

4.3.2 Drupal

Drupal a free and open source content-management framework written in PHP and distributed under the GNU General Public License, Provides a back-end framework for at least 2.3% of all web sites worldwide ranging from personal blogs to corporate, political and government sites. Systems to use Drupal for Knowledge management and for business collaboration.

S.No.	Drupal	
1.	Year	2000
2.	Original Author	Dries Buytaert
3.	Initial release	May 18, 2000
4.	Repository	Cgit.drupalcode.org/drupal
5.	Development status	Active
6.	Written in	PHP, using Symfony
7.	Operating System	Unix-like, Windows
8.	Platform	Cross-platform
9.	Size	80 MB (uncompressed Drupal 8 core)
10.	Available in	Multilingual
11.	Type	Content management framework, Content management system, Community and Blog software
12.	License	GPLv2
13.	Website	www.drupal.org

4.4 OTHER COMPUTER PROGRAMS

4.4.1 Ubuntu

Ubuntu is an open source software operating system that runs from the desktop, to the cloud, to all your Internet connected things. Ubuntu is a Debian- based Linux operating system for personal computers, tablets and smartphones, where Ubuntu Touch edition is used. It also runs network servers. That is usually with the Ubuntu Server edition, either

on physical or virtual servers or with containers that is with enterprise class features. It runs on the mainly popular architectures, together with server class ARM based. Ubuntu is published by Canonical Ltd, offer commercial support. Ubuntu based on free software and named after the Southern African philosophy of ubuntu.

S.No.	Ubuntu	
1.	Developer	Canonical Ltd. Ubuntu Community
2.	OS family	Linux
3.	Working State	Current
4.	Source model	Open Source
5.	Initial release	20 October,2004
6.	Latest release	Ubuntu 17.04 Zesty Zapus
7.	Marketing target	Personal Computers, servers; Smartphones and tablet computers (Ubuntu Touch)
8.	Available in	More than 55 languages by LoCos
9.	Update method	APT (Software Updater, GNOME Software)
10.	Package manager	Dpkg, Snappy
11.	Platforms	1386, IA-32, AMD64 ARMhf (ARMv7 + VFPv3-D16) ARM64, Power, ppc64le; s390x
12.	Kernel type	Monolithic (Linux)
13.	Userland	GNU
14.	Default user interface	GNOME, Unity, GNOME2
15.	License	Free software licenses (mainly GPL)
16.	Website	www.ubuntu.com

4.4.2 Firefox

Firefox created in 2002 under the name “Phoenix” by Mozilla community members who desired a standalone browser, rather than the Mozilla Application Suite bundle. Firefox was released in November 2004. Mozilla Firefox is a free and open source web browser developed by the Mozilla Foundation and its subsidiary the Mozilla Corporation. Firefox is available for Windows, macOS and Linux operating systems with its Firefox for Android available for Android and uses the Gecko layout engine to render web pages which implements current and anticipated web standards. An supplementary version Firefox for iOS, was released in late 2015.

S.No.	Firefox	
1.	Year	2002
2.	Developer	Mozilla Foundation and contributors Mozilla Corporation
3.	Initial release	September 23, 2002
4.	Written in	C++ , Java Script, C, HTML, Rust
5.	Operating System	Windows, macOS, Linux, Android, (OS) Unofficial ports to BSDs, Solaris, OpenSolaris, illumos
6.	Included with	Firefox OS, Ubuntu, Linux Mint
7.	Engines	Gecko, SpiderMonkey, WebKit (iOS only)
8.	Size	Window: 44 MB macOS:55 MB Linux : 56 MB

		Android: 28 MB iOS : 91 MB Source code: 205 MB
9.	Type	Web browser Feed reader Mobile Web browser
10.	Standard	HTML5, CSS3, RSS, Atom
11.	License	MPL2.0
12.	Website	Mozilla.org/firefox

4.4.3 Thunderbird

Thunderbird is a free email application that's easy to set up and customize. Mozilla Thunderbird is a free, open source, cross-platform email, news, RSS and chat client developed by the Mozilla Foundation. The project policy was modelled after that of the Mozilla Firefox web browser.

S.No.	Thunderbird	
1.	Year	2003
2.	Developer	Mozilla Foundation (formerly Mozilla Messaging)
3.	Initial release	July 28, 2003
4.	Repository	Hg.mozilla.org/comm.-central
5.	Written in	C, C++, JavaScript, CSS, XUL, XBL
6.	Operating System	Windows XP SP3 or later OS x 10.9 or later Linux 7
7.	Size	33MB
8.	Available in	53 languages
9.	Type	Email client, news client, feed reader
10.	License	MPL 2.0
11.	Website	Mozilla.org/thunderbird

4.4.4 GIMPshop

GIMPshop was a adaptation of the free and open source graphics program GNU Image Manipulation Program (GIMP), with the intention to duplicate the feel of Adobe Photoshop. Its most important purpose was to make users of Photoshop feel comfortable using GIMP.

S.No.	Wordpress	
1.	Year	
2.	Developer	Scott Moschella
	Operating System	Mac OS X, Linux, Microsoft Windows, Solaris
3.	Type	Raster graphics editor
10.	License	GNU General Public License
11.	Website	Sourceforge.net/projects/gimpshop.mirror

4.4.5 NVU (N-view)

Nvu is a WYSIWYG HTML editor. It is intended to be an open source alternative to proprietary software like Microsoft Expression Web and Adobe Dreamweaver. As a WYSIWYG editor, it is designed to be easy for novice users, and does not require any knowledge of HTML or CSS to use. It runs on Mac OS X, Windows and Linux. Nvu was the invention of Kelvin Carmony, CEO for Linspire, who wanted an easy to use WYSIWYG HTML editor for Linux users. Under Carmony's direction, Linspire started and sponsored Nvu, hiring Daniel Glazman, former Netscape Communication Corporation employee to be the lead developer.

As Nvu was discontinued the Mozilla community has formed a fork project, Kompozer.

S.No.	NVU	
1.	Year	2005
2.	Developer	Linspire, Daniel Glazman
3.	Development status	Discontinued
4.	Platform	Cross platform
5.	Type	HTML editor
6.	License	MPL, GPL, LGPL
7.	Website	www.nvu.com

4.4.6 PDF Creator

PDF Creator is an application for converting documents into Portable Document Format (PDF) format on Microsoft Windows operating systems. It installation by creating a virtual printer that prints to PDF files, and thereby allows practically some application to create PDF files by choosing to print from within the application and then printing to the PDF Creator printer. Since 2009 PDF Creator has incorporated closed source adware, toolbars and other controversial software that is installed by default.

S.No.	PDF Creator	
1.	Year	
2.	Developer	pdfforge
3.	Repository	Github.com/pdfforge/PDFCreator
4.	Written in	C#
5.	Operating System	Microsoft Windows
6.	Available in	Multilingual
7.	Type	PDF printer/creator/Adware
8.	License	Mixed proprietary and open source GNU AGPL Ghostscript : GNU GPL
9.	Website	www.pdfforge.org

Evaluation of open source software is different from proprietary programs. A key difference for evaluation is that the information available for open source programs is usually different than for proprietary programs; source code, analysis by others of the program design, discussion between users and developers on how well it is working.

Often proprietary programs always hide all information from users and only allow running the software.

That there are some very controlling solutions presented today that could be used to create a much more resourceful library. By using open source software in the library money that otherwise would be spent on software solutions can be used for other important resources, such as purchasing additional media resources (books, journals) or can be used to appoint educated technical support that provides customers with the know how to better use already existing resources. This free software is constantly being updated, changed and customized to meet the library's needs. While all of this is fine and dandy and sounds like the win-win solution for your library there are still pitfalls and hurdles we all need to overcome.

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