

## Open Source Content Management Software: A Comparative study with reference to Drupal, Joomla & WordPress

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### Abstract

This paper aims to study the open source content management software like Drupal, Joomla and WordPress. A thorough analysis of all the three software's has been done and listed the general and technical features available in all the three content management software. A content management system (CMS) is a database which organizes and provides access to all types of digital content - files containing images, graphics, animation, sound, video or text. It contains information *about* these files (known as 'digital assets'), and may also contain links to the files themselves in order to allow them to be located or accessed individually. A content management system is usually used to manage digital assets during the development of a digital resource, such as a website or multimedia production. It might be used by staff digitizing images, authors and editors, or those responsible for the management of the content development process (content managers). Content management systems range from very basic databases, to sophisticated tailor-made applications. These more complex systems can be integrated with the eventual digital resource in order to enable access to digital assets and to allow regular updating. *Aims* 1. To compare 3 Open Source Content Management Software to create the library website. 2. To find out the best OS CMS to create and develop the website. 3. To know the different OS CMS features. 4. To find out the suitable platforms to install the OS CMS. *Methods*: Investigative and evaluative research methodology was used for the study. Data were collected: By browsing internet and downloading 3 open source content management software such as Drupal, Joomla and WordPress. Comparing the selected open source content management software. Preparing the worksheet by using different criteria of selected open source content management software such as Drupal, Joomla and WordPress. *Conclusion*: Drupal, Joomla and WordPress basic features can be used to create simple sites, single or multi user blogs, brochure ware, forums, community websites and more. Libraries should make consistent efforts to provide web - based services to their users and it is the role of the librarians to act as a guide and be should up - to - date and should also know the usefulness of web sites, web portals. Hence librarians can easily work on the content management system. Content management system allows librarians to create resource page for their liaison groups without any prior knowledge of web development technologies. The study of widely used CMSs Joomla, Drupal and WordPress and the analysis of the features of an individual system can help an individual or organization to choose an appropriate CMS for their specific web application.

**Keywords:** Open Source Software; Drupal; Content Management Software; Joomla; Wordpress.

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### Introduction

Content is a king, Library is his Palace and Librarian is a Governor to regulate and govern the content management. Being in the digital world at hybrid library movement in web environment, content is granular information it would be text, graphics, pictures, sounds videos and data etc., Greater challenge of library and information science professionals is how to manage this granular

information in the dynamic web environment. Traditional content management software does like old proverb “garbage in – garbage out” (Rawtani, M R and Chidambaram, S Siva, 2009). The way in which content is managed with in the overall content management life-cycle from creation to dissemination is the content management system. It is a tool that enables a variety of technical and non-technical staff to create, edit, manage and finally publish a variety of content (such as text, graphics, video and document etc.), which being constrained by a centralized set of rules, process and workflows that ensure coherent, electronic content. Implementing content management system in Library, Library website environment needs the content management strategy. The elements of content management strategy has figured by Martin White in his book entitle “The Content Management Handbook” is a road map to frame the strategy (Rawtani, M R and Chidambaram, S Siva, 2009).

#### *Open Source Software*

Open source software (OSS) is computer software for which the source code and certain other rights normally reserved for copyright holders are provided under a software license that meets the Open Source Definition or that is in the public domain. This permits users to use, change, and improve the software, and to redistribute it in modified or unmodified forms. It is very often developed in a public, collaborative manner. Open source software is the most prominent example of open source development and often compared to user-generated content. The term *open source software* originated as part of a marketing campaign for free software. (Wikipedia Definitions - [http://en.wikipedia.org/wiki/Open\\_source\\_software](http://en.wikipedia.org/wiki/Open_source_software))

#### *Features of open Source Software*

OSS has many features. The important ones are:

- a. It is generally acquired freely
- b. Manufacturer or developer has no right to claim royalties on the distribution or use
- c. Source code is accessible to the user and distributed with the software
- d. No denial to an individual or to a group to access source code of the software
- e. It has provision of modifications and derivations under the programme’s original name
- f. Rights of facilities attached to the programme must not depend on the programme’s being part of a particular software distribution

- g. Licensed software cannot place restriction on other software that is distributed with it
- h. Distribution of License should not be specific to a product and License should be technology neutral, etc.

#### *Content Management System (CMS)*

A content management system or CMS is a software that facilitates creating, editing, organizing, and publishing content. WordPress is a Content Management System, that allows you to create and publish your content on the web. Although it is mostly used for web publishing, it can be used to manage content on an intranet, or in a single computer.

Content management systems are very relevant to knowledge management (KM) since they are responsible for the creation, management, and distribution of content on the intranet, extranet, or a website (Frost, Alan, 2010).

A content management system may have the following functions:

- Provide templates for publishing: Making publishing easier and more consistent with existing structure/design.
- Tag content with metadata: I.e. Allowing the input of data that classifies content (e.g. keywords) so that it can be searched for and retrieved.
- Make it easy to edit content
- Version control: Tracking changes to pages and, if necessary, allowing previous versions to be accessed
- Allow for collaborative work on content
- Integrated document management systems
- Workflow management: Allowing for parallel content development
- Provide extensions and plug-ins for increased functionality
- Etc.

#### *Open source Content Management Software*



Drupal is the most frequently discussed open source CMS developed by Dries buytaert during 1999. Drupal is a free software that allows an individual or a user community to easily publish, manage and organize a great variety of content with an endless

variety of customization on a website. Drupal.org website has been developed and distributed as an open source web platform. Drupal features module enables the content management systems, collaborative authoring environments, forums, newsletters, file uploads and many more utilities.



Joomla! is an award-winning content management system (CMS), which enables you to build Web sites and powerful online applications. Many aspects, including its ease-of-use and extensibility, have made Joomla! the most popular Web site software available. Best of all, Joomla! is an open source solution that is freely available to everyone. Joomla! is one of the world's most popular software packages used to build, organize, manage and publish content for websites, blogs, Intranets and mobile applications. Owing to its scalable MVC architecture it's also a great base to build web applications. With more than 3 percent of the Web running on Joomla! and a CMS market share of more than 9 percent, Joomla! powers the web presence of hundreds of thousands of small businesses, governments, non-profits and large organizations worldwide. As an award winning CMS led by an international community of more than a half million active contributors, helping the most inexperienced user to seasoned web developer make their digital visions a reality.



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 either part of an Internet hosting service or a network host in its own right. The first 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 local computer may be used for single-user testing and learning purposes. Features include plugin architecture and a template system. WordPress was used by more than 26.4% of the top 10 million websites as of April 2016. WordPress is reportedly the easiest and most popular website management or blogging system in use on the Web, supporting more than 60 million websites.

WordPress was released on May 27, 2003, by its founders, Matt Mullenweg and Mike Little, as a fork of *b2/cafelog*. WordPress is released under the GPLv2 (or later) license from the Free Software Foundation.

## Review of Literature

Sunny, Sanjeev K (2008), in his article briefly discussed about open source content management softwares, evaluation criteria of open source CMS in libraries like mambo, typo3 and Joomla.

Giri, Kaushal K (2009), discussed about open source software and its evaluation pertaining to the library content management systems software. Further added about installation and its maintains of few content management softwares.

Singhal, Niraj (2010), explains about composed of various subsystems that interact with content management systems software, need of CMS, open source content management system packages with comparative study of various cms softwares.

Sheokand, RN (2015) reveals about the file structure of the Joomla and explains about its core features thoroughly. And also explained about the blog and supported softwares to creation.

Viduka, Dejan (2013), seeks to present the results of an analysis of Mambo, Elxis with Joomla. This article also tries to compare with the technical features of Mambo and elxis, Elxis v/s Joomla benchmark comparison, comparisons result.

Wakode, BV (2013), compared the two leading open source content management system (CMS)

packages and highlights the file structure of Joomla and Drupal. It is based on his practical experience.

Bhattacharjee, Sudip (2014), examines the potential of open source content management software, classifying user generated content, need of CMS system, and software selection of WordPress, Joomla and Drupal.

## Methodology Adopted for the Study

Investigative and evaluative research methodology was used for the study. Data were collected: By browsing internet and downloading 3 open source content management software such as Drupal, Joomla and WordPress. Comparing the selected open source content management software. Preparing the worksheet by using different criteria of selected open source content management software such as Drupal, Joomla and WordPress.




### *Scope and Limitation of the Study*

Scope of the study is restricted to browsing internet




and downloading the 3 open source content management software such as Drupal, Joomla and WordPress.

*Comparative Analysis*




**Table 1: System Requirements**

System Requirements			
Application Server	Apache	CGI	blank
Approximate Cost	Free	Free	Free
Database	MySQL	MySQL	MySQL
License	Open Source	Open Source	Open Source
Operating System	Platform Independent	Platform Independent	Platform Independent
Programming Language	PHP	PHP	PHP
Root Access	No	No	No
Shell Access	No	No	No
Web Server	Any	Any	-




**Table 2: Security**

Security			
Audit Trail	Yes	No	Limited
Captcha	Free Add On	Free Add On	Free Add On
Content Approval	Yes	Yes	Yes
Email Verification	Yes	Yes	Yes
Granular Privileges	Yes	Yes	Yes
Kerberos Authentication	No	No	No
LDAP Authentication	Free Add On	No	Free Add On
Login History	Yes	Yes	Free Add On
NIS Authentication	No	No	No
NTLM Authentication	Free Add On	No	No
Pluggable Authentication	Yes	Yes	Free Add On
Problem Notification	No	No	Free Add On
Sandbox	No	No	Limited
Session Management	Yes	Yes	Free Add On
SMB Authentication	No	No	No
SSL Compatible	Yes	Yes	Yes
SSL Logins	Free Add On	Yes	Yes
SSL Pages	Free Add On	Yes	Limited
Versioning	Yes	Free Add On	Free Add On

**Table 3: Support**

Support			
Certification Program	Limited	No	Limited
Code Skeletons	Yes	Free Add On	Yes
Commercial Manuals	Yes	Yes	Yes
Commercial Support	Yes	Yes	Yes
Commercial Training	Yes	Yes	Yes
Developer Community	Yes	Yes	Yes
Online Help	Yes	Yes	Yes
Pluggable API	Yes	Yes	Yes
Professional Hosting	Yes	Yes	Yes
Professional Services	Yes	Yes	Yes
Public Forum	Yes	Yes	Yes
Public Mailing List	Yes	Yes	Yes
Test Framework	Yes	Yes	Yes
Third-Party Developers	Yes	Yes	Yes
Users Conference	Yes	Yes	Yes




**Table 4: Ease of Use**

Ease of Use			
Drag-N-Drop Content	Free Add On	No	Yes
Email To Discussion	Free Add On	Free Add On	Free Add On
Friendly URLs	Yes	Yes	Yes
Image Resizing	Free Add On	Yes	Yes
Macro Language	Free Add On	Yes	Free Add On
Mass Upload	Free Add On	Yes	Yes
Prototyping	Limited	Yes	Free Add On
Server Page Language	Yes	Yes	Yes
Site Setup Wizard	Limited	No	No
Spell Checker	Free Add On	Free Add On	Yes
Style Wizard	Limited	No	No
Subscriptions	Free Add On	Yes	Free Add On
Template Language	Yes	Yes	No
UI Levels	Yes	Yes	Yes
Undo	Limited	No	Limited
WYSIWYG Editor	Free Add On	Yes	Yes
Zip Archives	No	No	Free Add On

**Table 5: Performance**

Performance			
Advanced Caching	Yes	Yes	Free Add On
Database Replication	Yes	No	Free Add On
Load Balancing	Yes	Yes	Yes
Page Caching	Yes	Yes	Free Add On
Static Content Export	No	No	Free Add On

**Table 6: Management**

Management			
Advertising Management	Free Add On	Yes	No
Asset Management	Yes	Yes	Yes
Clipboard	No	No	No
Content Scheduling	Free Add On	Yes	Limited
Content Staging	Free Add On	No	No
Inline Administration	Yes	Yes	Free Add On
Online Administration	Yes	Yes	Yes
Package Deployment	Free Add On	No	No
Sub-sites / Roots	Yes	Yes	Yes
Themes / Skins	Yes	Yes	Yes
Trash	No	Yes	Yes
Web Statistics	Yes	Yes	Free Add On
Web-based Style/Template Management	Yes	Yes	Yes
Web-based Translation Management	Yes	Free Add On	Limited
Workflow Engine	Free Add On	No	No
Advertising Management	Free Add On	Yes	No
Asset Management	Yes	Yes	Yes

**Table 7: Interoperability**







Interoperability			
Content Syndication (RSS)	Yes	Yes	Yes
FTP Support	Limited	Yes	Free Add On
iCal	Free Add On	Free Add On	Free Add On
UTF-8 Support	Yes	Yes	Yes
WAI Compliant	Limited	No	Limited
WebDAV Support	No	No	No
XHTML Compliant	Yes	Yes	Yes

Table 8: Flexibility

Flexibility			
CGI-mode Support	Yes	Yes	No
Content Reuse	Limited	Yes	Yes
Extensible User Profiles	Yes	Yes	Free Add On
Interface Localization	Yes	Yes	Yes
Metadata	Yes	Yes	Yes
Multi-lingual Content	Yes	Free Add On	Free Add On
Multi-lingual Content Integration	Yes	Free Add On	Free Add On
Multi-Site Deployment	Yes	Free Add On	Yes
URL Rewriting	Yes	Yes	Yes

Table 9: Built-in-Applications

Built-in-Applications			
Blog	Yes	Yes	Yes
Chat	Free Add On	Free Add On	Free Add On
Classifieds	Free Add On	Free Add On	Free Add On
Contact Management	Free Add On	Yes	Free Add On
Data Entry	Free Add On	Free Add On	Free Add On
Database Reports	Free Add On	Free Add On	No
Discussion / Forum	Yes	Free Add On	Free Add On
Document Management	Free Add On	Free Add On	Yes
Events Calendar	Free Add On	Free Add On	Free Add On
Events Management	Free Add On	Free Add On	Free Add On
Expense Reports	No	Free Add On	No
FAQ Management	Yes	Yes	Free Add On
File Distribution	Free Add On	Free Add On	Free Add On
Graphs and Charts	Free Add On	Free Add On	Free Add On
Groupware	Free Add On	Free Add On	No
Guest Book	Free Add On	Free Add On	Free Add On
Help Desk / Bug Reporting	Free Add On	Free Add On	Free Add On
HTTP Proxy	No	No	Free Add On
In/Out Board	Free Add On	No	Free Add On
Job Postings	Free Add On	Free Add On	Free Add On
Link Management	Free Add On	Yes	Yes
Mail Form	Free Add On	Yes	Free Add On
Matrix	No	No	No
My Page / Dashboard	Free Add On	No	Yes
Newsletter	Free Add On	Free Add On	Free Add On
Photo Gallery	Free Add On	Free Add On	Yes
Polls	Yes	Yes	Free Add On
Product Management	Free Add On	Yes	Free Add On
Project Tracking	Free Add On	Free Add On	Free Add On
Search Engine	Yes	Yes	Yes
Site Map	Free Add On	Free Add On	Free Add On
Stock Quotes	Free Add On	Free Add On	Free Add On
Surveys	Free Add On	Free Add On	Free Add On
Syndicated Content (RSS)	Yes	Yes	Yes
Tests / Quizzes	Free Add On	Free Add On	Free Add On
Time Tracking	Free Add On	Free Add On	Free Add On
User Contributions	Yes	Yes	Yes
Weather	Free Add On	Free Add On	Free Add On
Web Services Front End	Limited	Yes	Free Add On
Wiki	Free Add On	Free Add On	Free Add On

## Conclusion

Drupal, Joomla and WordPress basic features can be used to create simple sites, single or multi user

blogs, brochure ware, forums, community websites and more. Libraries should make consistent efforts to provide web - based services to their users and it is the role of the librarians to act as a guide and be should up-to-date and should also know the

usefulness of web sites, web portals. Hence librarians can easily work on the content management system. Content management system allows librarians to create resource page for their liaison groups without any prior knowledge of web development technologies. The study of widely used CMSs Joomla, Drupal and WordPress and the analysis of the features of an individual system can help an individual or organization to choose an appropriate CMS for their specific web application.

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