

## Creating library website using Joomla: An open Source Content Management System

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### Abstract

*A content management system (CMS) is a software program that makes building and maintaining Web sites faster and easier. The system can automatically pull the content out and show it on the appropriate pages based on rules you set up in advance. There are several CMS available now a day's varying based on functionalities and platforms.. This paper discusses about study of most widely used content management systems Joomla. This study will help library professional to choose an appropriate CMS for their specific web application.*

**Keywords:** CMS, Joomla, Apache, XAMPP, PHP, MYSQL.

### 1. Introduction

Joomla is a free and open source content management system (CMS) for publishing content on the World Wide Web and intranets. Joomla is written in PHP, uses object-oriented programming (OOP) techniques and software drawing pattern, supplies data in a MySQL database, and include features such as page caching, RSS feed, printable version of pages, information flashes, blogs, polls, investigate, and sustain for language internationalization. A content management system (CMS) is a system providing a collection of procedures used to manage work flow in a two-way environment. These procedures can be physical or computer-based. Here a CMS, data can be defined as nearly anything : papers, movies, text, pictures, phone information, scientific data, and so forward. CMSs are frequently used for storing, calculating, revising, semantically elevating, and publishing documentation.

CMS is used tool to manage website content and depository for in sequence. CMS is a software package that lets us to construct a website that can be quickly and easily updated by your non-technical staff member. These release source systems are produced and supported by a community of developers, and can be downloaded with no cost. A web presence is critical for almost each nonprofit, but create websites can be daunting. It can take a lot of time, money and technical capability, which are frequently in short supply. And just because you have a website up and running doesn't mean your work is done. We still require charge up with preservation, updates and desirable new features. This is where an open source Content Management System can help. Content Management Systems (CMS) have evolved into more than just publishing at ease, but organization our workflow as well. CMS's at the present time allow you to easily imagine, edit, index, and issue at ease, while giving designers and developers more flexibility in customizing their look and functionality. Even if there are many that require advanced skills to operate successfully, this piece of writing is going to cover a select few that offer a balance between drawing, code, and end-user usability.

### 2. Technical Features

- Software is capable to develop web Portals
- It has powerful media manager which can be used to manage multimedia and image files
- It can be customized with dynamic themes available at no cost
- Joomla uses Bootstrap 3 for creating responsive web portals
- It uses PHP as scripting language, MYSQL as database and Apache as Web server
- Web based interface for in-house operations;
- It has extensive control panel/dashboard for creating and managing contents and menus

- It also facilitates integration on external payment gateway module for the portals which are dealing with online payment
- The software has inbuilt Banner Manager which provides facility to change or manage banners as per the requirement
- Components are available free of cost to enhance the core of Joomla
- It has a feature called 'Search better search smarter' which provides facility to search within the website
- In case, user is not able to categorise the content, they can use tagging option available for distinguishing the content
- Access control list allows users to manage the users of their website, and different groups
- Supports Unicode standard for Multi-Lingual contents and Flexibility of database structure

### 3. Pre-requisites

To proceed to work with Joomla! and make it functional one requires that the web server, or the service provided by the web host, meets the minimum requirements. These are

1. PHP 4.3.x or above: <http://www.php.net>
2. MySQL 3.23.x or above: <http://www.mysql.com>
3. Apache 1.13.9 or above: <http://www.apache.org>

A brief description of each one of these and what they perform is given below.

#### 3.1 APACHE

The Apache HTTP Server, commonly referred to simply as Apache, is a web server notable for playing a key role in the initial growth of the World Wide Web and developed by an open community of developers. It is one of the leading open source web servers and is the favoured choice of internet service providers in terms of functionality, performance and availability for a variety of operating systems including Microsoft Windows and Linux.

#### 3.2 PHP (Hypertext Preprocessor)

PHP is a reflective computer programming language originally designed for producing dynamic web pages through scripts which can be embedded in HTML. PHP is used mainly in server-side scripting, but can be used from a command line interface or in standalone graphical applications. It is a free software by the Free Software Foundation. PHP can be deployed on most web servers and on almost every operating system and platform free of charge.

#### 3.3 MySQL

MySQL is a multithreaded, multi-user SQL database management system. The basic program runs as a server providing multi-user access to a number of databases. MySQL is popular for web applications and acts as the database component of the LAMP, MAMP, and WAMP platforms (Linux/ Mac/ Windows-Apache-MySQL-PHP/Perl/Python). Its popularity for use with web applications is closely tied to the popularity of PHP, which is often combined with MySQL. Wikipedia runs on MediaWiki software, which is written in PHP and uses a MySQL database. MySQL is owned and sponsored by a single for profit firm, the Swedish company MySQL AB, and is available under General Public License.

### 4. Implementing the technical requirements: A Preconfigured Approach

There are two ways in which these requirements can be fulfilled. First way is to install all the three components individually. The second option is to use a preconfigured package such as **WAMP** or **XAMPP** the two of which have been creating a complete development environment with the ingredients like Apache, MySQL, PHP, Perl, and various extensions. Installing all the components separately and then configuring them with each other was a difficult as well as cumbersome task where as installing a preconfigured package

was easy and less time consuming. Moreover, using these pre-configured packages is easy and they even provide additional functionalities. A brief description of the one we used is given below.

#### **4.1 XAMPP**

**XAMPP** is a free, cross-platform web server, consisting mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP's name is an abbreviated form or X (any of four different operating systems: Microsoft Windows, Linux, Sun Solaris and Mac OS X), Apache, MySQL, PHP and Perl. It has been released under the GNU General Public License and acts as a free, easy-to-use web server capable of serving dynamic pages. It is a favourite for web development projects. XAMPP only requires one zip, tar or exe file to be downloaded and run, and very little configuration of the various components that make up the web server is required. XAMPP is regularly updated to incorporate the latest releases of Apache/MySQL/PHP and Perl. It also comes with a number of other modules, including phpMyAdmin, which provides a easy way to manage the data stored in MySQL, File Zilla.

#### **5. Downloading and installing Joomla!**

Once XAMPP is installed, one is ready for the installation of Joomla!

##### **5.1 Downloading Joomla!**

The main distribution files for Joomla! can be downloaded from <http://www.joomla.org>. The file will be a compressed archive, which needs to be uncompressed or untarred or unzipped by using a utility. This should be available either locally or on one's host server. There are many freely available e.g. WinZip or WinRAR. Fig 1 shows the screen shot of the joomla code website.

##### **5.2 Installing Joomla!**

Joomla can be installed locally or remotely. Assuming that XAMPP has been installed and configured to meet the requirements of Joomla, unzip the distribution file into a directory under one's web server root. In windows OS, this is typically c:\xampp\htdocs and /usr/local /xampp/ htdocs on a UNIX system but it may vary on hosted servers and between different brands of operating systems. To install remotely one must check the facilities on the host regarding control panel software and connection resources and users own skill [7].

##### **5.2.1 Pre Installation Check**

Assuming one has a working Apache web server, with PHP and a MySQL Database, one is on the way to installing Joomla!. When one has finished uploading the files and folders, go to the homepage (like <http://www.sitename.com> or [http://sitename.com/joomla\\_folder](http://sitename.com/joomla_folder)) in case of remote installation and to the folder in root directory where Joomla! files were extracted (like [http://localhost/joomla\\_folder](http://localhost/joomla_folder)) in case of local installation. One should now see a pre-installation check page generated by Joomla!

##### **5.2.2 Installation-Step 1**

The next page configures the MySQL database which is Step 1 of the installation process. Step 1 of the installation deals with the configuration of the MySQL database. Enter the configuration of MySQL Database. The hostname of database is usually localhost. This means the database server is running on the same computer as web server. On occasions where localhost is not a usable database server, one will need to contact administrator. Host providers, using control Panel, usually allows one to set up his own User Name, Password, and Database Name. Again, if in any doubt consult your host provider for this information. The option to Drop Existing Tables in the nominated database as is the option to Backup Old Tables is given. For a first time installation, one should leave both of these blank. One may also Install Sample Data. If this is one's first Joomla! installation, we recommend to check this option as one will find the benefit when one gets to look around site for the first time. When one has entered one's database information correctly, click the Next button. Confirm the database information when asked.



### 5.2.3 Installation - Step 2

Step 2 is simply a page where one enters the name of the site. This will appear in the Global Configuration. Enter a name for the site and click the "Next" button. One should note that special characters are usable in this information area.

### 5.2.4 Installation - Step 3

Step 3 is a page to confirm the installation directory, the url to the Joomla site, one's email address and the administrator password. The email address is for Super Administrator email. This user account is automatically created. The password one enters will be used for their "admin" account. The username for the Super Administrator is "admin". One may change the randomly generated password if one desires.

The permission settings will be used while installing Joomla itself, by the Joomla addon-installers and by the media manager. If one is unsure what flags shall be set, leave the default settings at the moment. One can still change these flags later in the site's global configuration. Click the "Next" icon. The final page confirms the status of the installation and the Super Administrator login name and password.

### 5.2.5 Installation - Step 4

The final page allows one to copy information for the configuration.php file. Copy the configuration file data. One can either paste it directly into the configuration.php file on the server and rename that file configuration.php, or create a separate configuration.php file and upload it to the Joomla! root directory. One only needs to copy and paste the data if the installation has not created the configuration.php file for you. However, it does no harm to keep a note of this information in a local file for future reference. Do not forget your Super Administrator login name and password as it is not possible to enter the admin section without this. If one loses this information, one must restart the complete set up procedure. For security reasons one is reminded to delete the installation folder, and then refresh the page. Until this is done, Joomla will not work. There are two buttons that will take one to either the Joomla Site or the Site Administrator. If this is the first installation click the "View Site" button. One should see new Joomla site. Take a moment to explore some menu options. When one is ready, click the "Administrator" link in the Main Menu. Enter the user name and password as one saw them on the Step 4 page. If this is not the first time then one will know what to do next. The set up has now been completed, and one is ready to Joomla! .

## 6. Advantages Of Using Joomla Cms

1. **Open source** - The best advantage of using the Joomla CMS is that it is an open source platform and is available for free. All the source codes are somewhat available for free and the user can reuse it as per the requirements. If we want to hoard some of our hard earned money we must make our website using Joomla CMS.
2. **Usability** - Joomla Content Management System used for making any kind of websites, right from the small, simple and personal blog to the large corporate website or any e-commerce website. The plenty of options and features available in Joomla CMS enables the user to make a website with all necessary modules. One can also make the organizational websites and government applications using the Joomla CMS. Even the online communities/online magazines could be created easily by using Joomla CMS.
3. **Accessibility** - Joomla CMS is very easy to use and just a layman having no technical knowledge about HTML programming can make a website using it. This is the major advantages of Joomla CMS which is making it increasingly popular bit by bit.
4. **Themes and templates** - Joomla CMS comes with various attractive themes and templates. Also we can make our website look attractive by using different types of inbuilt templates and themes. Selecting or changing the existing theme and template is absolutely easy in Joomla CMS.

5. **Trouble-free Migration** – If we have our website in Joomla we can migrate to any other server with ease.

#### **7. Disadvantages Of Using Joomla Cms**

1. One major drawback that Joomla user experience is that some of its plug-ins works with only some particular scripts.
2. We can customize our website extensively as we can do with other open source platforms.
3. The learning curve is larger as compared to other open source platforms.
4. Makes the website heavy to load and run.

#### **Conclusion**

To conclude we see Joomla! as a very powerful Content Management System(CMS), most suited to meet the requirements of an Information Manager/Librarian in any university or institute without much technicality and comparative ease. It can be used to develop an elaborate web portal free from the clutches of proprietary software.

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