Introducing the Joomla! Content Management System

IN THIS CHAPTER

- Understanding open source content management

- Discovering the Joomla! CMS and what it can do

- Reviewing Joomla! functionality and basic architecture

- Exploring the Joomla! community and how you can get involved

Joomla! is an award-winning content management system that brings powerful website creation and management tools to the masses. You don't have to be a programmer to use Joomla! because you don't need to work with the code to install, set up, or manage your site. To get started, all you need is access to a web-hosting service to install Joomla! and a web browser to create and manage your site. Moreover, the Joomla! content management system is open source, and therefore free of licensing fees and restrictions on use.

Joomla! is one of the most popular content management systems in use today, with millions of successful implementations. With the arrival of Joomla! 3, the system entered a new era, with greatly enhanced usability, extended compatibility, and an emphasis on the ability to create mobile-friendly, responsive websites. You can also use Joomla! as a framework for the development of powerful web applications, via the Joomla! Platform.

This introductory chapter explores the advantages of using both Joomla! and open source, and provides you with the big picture of how Joomla! works and how you can use it to build or manage your own website.

Discovering Open Source Content Management

A *content management system*, or CMS, is a software tool that you install on a server. The software enables you to publish pages on a website and to manage the website's features, content, and users through an easy-to-use browser-based interface. Historically, full-featured CMS products were expensive, and dominated by major brand names such as BroadVision, Vignette, and

Microsoft. Over the last decade, however, the market shifted as robust open source products arrived on the scene, supplementing, and in some cases supplanting, their commercial brethren.

The appearance of viable open source content management solutions has had a significant impact on the market, essentially democratizing the content management space. Small businesses and individuals that could never before afford a proper CMS can now implement an open source solution and create a web presence that is competitive with much larger firms. As open source systems increased in stability and functionality, they started to find a place in larger firms. Today you can find open source CMS products at every level of business, both public and private.

Deciding to use a CMS

Content management systems make maintaining a website more practical and affordable. In the past, if you wanted to build a website, you created a set of static HTML pages — that is, you hard-coded each page with your text and images. The old approach suffered from numerous limitations, particularly in terms of scalability and ease of management; with hard-coded pages, you are forever working with the code on each page whenever you want to make a change. Modifying the contents of a page by manually changing the code is both time consuming and labor intensive. Owning a static site also locks you into hiring people with coding skills to perform content management tasks.

In contrast, if you use a CMS to power your website, anyone with basic skills can make changes to the site. You do not need a programmer to change the text or the images on a page. Most systems, including Joomla!, use a content management interface that is similar to what you see in common word processing programs, such as Microsoft Word.

With a CMS, you gain significant advantages, including

- Increased control over your website
- Improved time to market with content changes
- Lower cost per page
- Decreased total cost of ownership for your site

A CMS typically enables you to:

- Identify key users and their roles
- Assign roles and responsibilities
- Define workflow
- Schedule and publish content
- Limit access to content and functionality
- Administer the system
- Take the site offline to perform maintenance tasks
- Add components

> **NOTE**
>
> Numerous types of content management systems are available; some focus on particular specialties. Systems such as Joomla! are typically labeled *web content management systems* because they focus primarily on managing a website, its content, and users. Other systems focus on document management, catalog management, or digital asset management. If you are looking for a specialized system, such as a document management system, then you should research the alternatives available to find the best match for your needs.

Deciding to use open source

Open source is about freedom; not simply the ideal of freedom, but the commercial reality of freedom. Open source software does not carry licensing or subscription fees. Although the initial attraction of open source software may be the fact that it is free of charge, you are likely to find very quickly that the long-term advantage of open source lies in two other characteristics. First, the code is accessible. Unlike many commercial products that not only hide their code but also forbid you from modifying it, open source code is visible and you are free to modify the code of an open source product to suit your specific needs. Second, open source protects you from being tied to a specific vendor. If you adopt an open source solution, you can partner with the developer of your choice to assist you. If you deploy a system such as Joomla!, which is based on popular and common technologies, you need not dread having to change vendors in the future, as it is relatively easy to find people who are familiar with the system and have the skills needed to work on it. Taken together, the initial cost advantage plus the long-term benefits of having access to the code and your choice of vendors create a compelling argument in favor of open source.

While the positive attributes of open source make it a great choice for many organizations, no solution is completely without disadvantages, and those negative aspects need to be a part of your decision process as well. If your firm has existing software deployed on a proprietary system, a change to open source will (at least initially) bring added complexity and you will want to look closely at compatibility, the costs of change, and whether open source is the right fit for your business needs.

Support can also be an issue. Like most open source products, Joomla! does not provide a support package. If your firm demands a high level of support, you will need to find an open source vendor that offers an appropriate service level agreement. If you have internal resources, or are a do-it-yourselfer, Joomla! does provide a number of community-based support options that can be of assistance, including

- Online documentation
- Community forums
- Online tutorials
- Mailing lists
- RSS feeds
- Developer wiki

Do not lose sight of the fact that while the actual Joomla! software is free, there are costs to implementing and owning any website. Common costs include

- Design services
- Consulting services
- Custom development
- Deployment
- Support
- Hosting services
- Domain names
- Licenses for other related software, for example, certain extensions
- Maintenance

While all of these expenses may not be applicable to your project, you should consider them when calculating the total cost of ownership of an open source system. Even if you plan to manage and maintain the site yourself, don't forget that there is a cost associated with your time. It is a common mistake to underestimate the amount of time it can take to maintain a site. A CMS is a complex piece of software and it can be a target for hackers and others with bad intent. You cannot just build your site and forget it. Across the life of the site you will need to install patches and security releases. The more complicated your site is, the more time you will require for maintenance and patch management.

Determining whether open source is right for you

Although open source provides a welcome alternative to commercial software and it will work for the vast majority of people, it is not necessarily the right answer for everyone. Whether open source is right for you depends upon your situation and your tolerance for business risk. The advantages are as follows:

- **Open source is cheaper to obtain.** Studies also show that implementation costs can be significantly less than for closed source solutions.
- **Open source can be vendor agnostic.** You are not tied to a single vendor and cannot be held hostage by that vendor.
- **Open source presents less risk.** Studies consistently show that the open source development process produces better code and that many eyes make for more secure applications. Moreover, when problems are detected, open source produces patches at an extremely fast rate.
- **Open source is easier to install.** It's also typically easier to configure and customize, not requiring a legion of highly paid consultants.
- **Open source promises more rapid innovation.** A large community working on a product stimulates innovation.

If you are still not sure, start small. Roll out an open source solution in a limited role in your firm. Try it out. Six months from now, evaluate the results and decide whether open source is the right path for you. If you are like many others, you will find that it is not only a viable option, but also an attractive one!

Discovering Joomla!

Joomla! started life in 2005 as a fork of the already popular Mambo open source content management system. The Joomla! community came together around the new project very quickly and helped create prominence and excitement around the new brand. Over the years, the project has gone from success to success and has grown to become one of the largest and most active open source projects.

> **NOTE**
> The Joomla! name derives from a phonetic spelling of a Swahili word meaning "all together" or "as a whole."

The features included with the core system are

- **WYSIWYG content editor.** Edit articles with the ease of use of a word processor.
- **Content scheduling.** Set start and stop dates for the publication of your content.
- **Content archiving.** Store old articles for ease of reference.
- **User management.** Create users and assign them to groups.
- **Access control.** Control the users' access to content and functionality.
- **Media manager.** Upload and organize your media files.
- **Language manager.** Add new language packs to enable multilingual interfaces for your site.
- **Banner manager.** Upload and run advertisements.
- **Contact manager.** Store contact details of your users and enable contact forms for them.
- **Search.** Search the site's content.
- **Weblinks management.** Create pages containing links to other websites.
- **Content syndication.** Syndicate your content items with RSS feeds.
- **Newsfeed aggregation and display.** Bring external RSS content into your site.
- **Integrated help system.** View help files from within your admin system.
- **Multiple template management.** Add new templates and assign them to the pages of your site.
- **Cache management.** Manage site performance by controlling the caching of information.

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- **Responsive design.** Gain compatibility with a wide range of mobile devices and browser platforms.
- **Multilingual site support.** Offer your content in multiple languages with the built in Language Manager.
- **Search engine–friendly URLs.** Create search engine–friendly URLs to make your site more competitive on the search engines.

In addition to the core functionalities, Joomla! is extendable. With over 10,000 open source extensions available for little or no charge, you can customize the site to include the functionalities you need.

Deciding to use Joomla!

For most people, deciding to use Joomla! is a relatively easy step to take. Joomla! is comprehensible, affordable, and flexible enough to grow with you over time. Joomla! is, in short, an easy-to-use option for creating and managing a full-featured website.

Although Joomla! is an excellent solution for many needs, it is not suited to every conceivable use. There are areas where the system excels, and others that present challenges. If you want to be more analytical about Joomla!, then you should consider the pros and the cons.

Here are some of the best arguments for using Joomla!:

- **Tens of millions of downloads.** This is a healthy and growing project with a large fan base.
- **Over 10,000 extensions available.** The large number of extensions means you can tailor Joomla!'s functionality for your site.
- **Uses the popular LAMP stack.** It is easy to find hosting and help.
- **Presentation layer is very easy to work with.** You can customize the appearance of the site to match your brand. You aren't restricted to creating a "cookie cutter" website.
- **Decent e-commerce options.** If you want to sell products online, low and no cost extensions are available that add to Joomla! all the most common e-commerce functionalities as well as providing useable catalog management.
- **Wide developer support.** It is easy to find help for your Joomla! site. Developers, designers, and other third-party services are readily available.
- **Decent documentation.** The online documentation provided by Joomla! is some of the best in open source. You can also find commercial documentation in a variety of formats.
- **Very active community.** An active and dynamic community means that you can get support in the forums and you can be assured of the ongoing vitality of the project.
- **Affordable development costs.** Competition and a common platform make for a wide range of vendor choices and price points. Given the large number of people providing Joomla! services, you can probably even find someone in your area.

Who Uses Joomla!

Because Joomla! is so popular, you can find a large number of example sites live on the web. The system supports everything from small marketing sites to large e-commerce sites. Here's a roundup of some of the better-known companies and brands that use Joomla!.

Name	URL
Citibank	`Intranet — not publicly accessible`
The Guggenheim Museum	http://guggenheim.org
Harvard University, The Graduate School of Arts and Sciences	http://gsas.harvard.edu/
IHOP Restaurants	www.ihop.com/
Oklahoma State University	http://osu.okstate.edu
Outdoor Photographer Magazine	www.outdoorphotographer.com

If you'd like to see more examples, visit the Joomla! Community Showcase, where you will find a browsable collection of Joomla! sites organized by category. Go to http://community.joomla.org/showcase/.

Here are some of the drawbacks you should consider before committing to Joomla!:

- **No workflow.** If your site needs to replicate your offline workflow, Joomla! may not be the answer for you. The system does not include a workflow engine.

- **Possible difficulty maintaining customized sites.** If you need to customize the code of your site, you have to be careful with upgrades in order to avoid losing your customizations. So, the more customization you need, the more work is involved in upgrades.

- **SEO is mixed.** Joomla! includes a search engine–friendly (SEF) URLs option, but the default system's configuration options are quite limited. There are, however, a number of third-party extensions you can add to the site to improve this.

- **Extensions vary widely in quality.** While a lot of extensions are available for the system, they are not of equal quality. Do your homework and check extensions carefully before committing to them.

- **A number of extensions are commercial.** The Joomla! core is free of charge, but a number of extensions for the system are commercial, often charging recurring "subscription" fees.

Complying with the Joomla! open source license

The Joomla! system is released under the GNU General Public License, commonly known as the GNU GPL. Joomla! is governed by Version 2.0 of the license. The GNU General Public License grants all users of software released under the license four freedoms:

> The freedom to run the program for any purpose.
>
> The freedom to study how the program works and adapt it to your needs.
>
> The freedom to redistribute copies so you can help your neighbor.
>
> The freedom to improve the program and release your improvements to the public, so that the whole community benefits.

As a site owner, this means that the software is free of licensing fees and that you are able to use it for any purpose or any type of site. The only significant restriction is on your ability to resell the system; though it is permissible to sell products that include the code, you must release those products under licensing terms that are consistent with the GNU GPL v.2. This provision essentially takes away the motivation to turn the code into a commercial product because the terms of the license mean that the person who buys the code can distribute it to the public without paying you further for that privilege.

The user's freedom extends to the right to modify the code. You are not only free to use the system however you see fit, but you are also free to customize the code to suit your needs. Although your customizations are modifications of the GPL code, the license does not force you to disclose that modified code to others, unless you decide to release and redistribute the code. In other words, you cannot be forced to release code you have developed but do not want to release to the public.

The majority of the extensions available for the Joomla! system are also released under the GNU GPL. While some of the extensions are commercial, and a few are even encrypted, a growing impetus exists within the Joomla! community to make sure that extensions are fully GPL-compliant and that users can access and modify the code for the extensions.

NOTE

View the full text of the GNU GPL version 2 at www.gnu.org/licenses/old-licenses/gpl-2.0.html .

Understanding the Joomla! Architecture

At birth, Joomla! was focused solely on the development of a world-class content management system and, accordingly, the Joomla! CMS was the focus of the project. Behind the scenes, however, there was a lot more going on than was visible to most users; there was another layer that provided a lot of the power and functionality for the CMS product. In 2011, that second layer took on a life of its own with the release of the Joomla! Platform, a web applications development platform based on the routines and protocols that powered the Joomla! CMS. Today two products bear the Joomla! name: the well-known Joomla! CMS and the lesser-known Joomla! Platform. While the two products are closely related, they serve different purposes and are intended for different audiences.

NOTE

The Joomla! Platform is also sometimes referred to as JPlatform.

Working with the Joomla! CMS

The Joomla! CMS product is the focus of this book, and by far the more commonly deployed of the two Joomla! products. The CMS is what powers the many websites deployed on Joomla! worldwide. The content management functionalities most in demand by website owners and web developers are supplied by the CMS.

In broadest terms, the Joomla! CMS works like this: When a site visitor requests a page by clicking a link, Joomla! assembles that page by retrieving the contents from the database; it then uses the Joomla! template files for guidance in how to present that information on the page. The merged information (the content plus the presentation layer) is then sent to the user's browser where it is rendered for the visitor to see.

Unlike other systems that store rendered pages, almost all information in Joomla! is kept in the database and displayed on the visitor's screen on demand. The text, images, usernames, and passwords are all kept in the database. Use of caching can change this to a limited extent, but generally speaking, everything is dynamically generated. When you are editing content in Joomla!, you are editing information in the database. The Joomla! template files provide the formatting and layout that the site visitors see on their screens. A template is actually a collection of files typically containing a mix of CSS, PHP, HTML, XML, and image files. If you want to change the underlying layout of the site's page, then you need to edit the template files.

NOTE

With the arrival of Joomla! 3, the presentation layer relies heavily on the use of Twitter Bootstrap, an interface development framework that provides developers with a number of tools that make creating responsive, consistent interfaces easier. You can learn more about Bootstrap by visiting http://twitter.github.com/bootstrap/.

Working with the Joomla! Platform

In contrast to the Joomla! CMS, which is aimed at a broad audience of website owners, the Joomla! Platform is aimed squarely at developers. The Platform is an enabling tool, allowing developers to go to market with their own web applications more quickly than they would if they did not have the suite of helpful tools and protocols included in the Platform.

Using the Platform, developers can do almost anything, even build their own CMS! The Platform is, essentially, the contents of the `/libraries` directory in your Joomla! distribution. That directory contains a large number of classes and methods that you can access via the command line; there is no GUI interface for the Platform. Though the Platform is a part of the CMS product, it is a completely independent set of libraries that do not require the Joomla! CMS application.

> **NOTE**
> You can find the home of the Joomla! Platform at https://github.com/joomla/joomla-platform.

Appreciating the underlying technologies

An open source product like Joomla! is only possible due to the existence of a number of supporting technologies. The system relies on a mix of programming languages, databases, and web servers. The technologies at the heart of Joomla! are also open source — a classic example of a complex system enabled by the existence of a large number of smaller parts. Joomla! not only includes some supporting technologies in the actual files that are part of the installation, but also relies on the presence of compatible technologies in the hosting environment.

The key components at work here include

- **Programming languages.** Joomla! is primarily written in PHP, though you will find a number of file types inside the system, including CSS, HTML, JavaScript, Ajax, JSON, and XML.
- **Databases.** The database is key in the Joomla! architecture. The system relies on the database for a wide range of tasks, including the storage of all content and user data. Joomla! was originally built to use the MySQL database but now supports both Microsoft SQL and T4 PostgreSQL.
- **Web servers.** Web servers are responsible for processing the requests received from the users and then routing the proper information to those users. Joomla! is tailored for use with the Apache web server, but can also use nginx or Microsoft IIS.

> **NOTE**
> The programming languages, the database, and the web server are not actually part of Joomla!; rather, they reside in the hosting environment. Nonetheless, they are necessary and must be compatible with Joomla! for things to work properly.
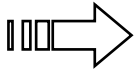
For a full list of technical requirements for running Joomla!, see Chapter 2.

Making sense of the Joomla! release schedules

Joomla! follows a release schedule that some users find confusing. The schedule isn't that hard to grasp, however, if you understand a couple of key distinctions. The first thing to remember is that the Joomla! CMS and the Joomla! Platform are not on the same release schedule and that they do not share the same version numbering. Don't confuse the two.

- The Joomla! Platform releases every 3 months.
- The Joomla! CMS releases every 6 months.

> **NOTE**
> When I talk about releases, I am referring to scheduled releases; if there is a need to publish a patch (typically due to a security issue that needs to be urgently addressed), then an interim release occurs to address that issue.

The second thing you need to understand is specific to the CMS. The Joomla! CMS maintains two streams of releases: One stream is called the Long Term Support release (also known as the LTS release), and the second is the Standard Term Support release (also known as the STS release). Here are some key points to keep in mind:

- New Joomla! CMS releases will appear every 6 months.
- All LTS releases are numbered as x.5 (for example, Joomla! 2.5).
- LTS releases have a lifespan of approximately two years.
- STS releases have a lifespan of approximately one year.

The key concept to grasp here is that after the lifespan of any release passes, you cannot count on support via additional patches and updates. To put this into a meaningful framework for making decisions: If you want to adopt the version with the lowest risk and the longest lifespan, stick to LTS releases. If, on the other hand, you want the most cutting edge release, then grab the most current release, which is often an STS release.

Engaging with the Joomla! Community

Joomla! is an example of a community-driven open source project. Unlike corporate-sponsored projects, Joomla! is the work of a loosely affiliated group of individuals working together as a community. It is, in other words, a volunteer effort. The community supports not only the software, but also the users. As a future user of Joomla!, you should be aware of the resources that exist within the community and how you can tap into the wealth of knowledge that exists there. In this section, I look at the structure of the Joomla! community, the key resources available, and how you can get involved with the Joomla! project by participating in this rich and varied community.

Official Joomla! Sites

The Joomla! team maintains a number of official sites. Some sites are informational, others provide a way to distribute the code, and others help promote and market Joomla!

Name	URL
Joomla! (main site)	www.joomla.org/
JoomlaCode	www.joomlacode.org/
The Joomla! Developer Network	http://developer.joomla.org/
The Joomla! Extensions Directory	http://extensions.joomla.org/
Joomla! Official Documentation	http://docs.joomla.org/
The Joomla! Forum	http://forum.joomla.org/

Understanding the structure of the community

Support for Joomla! and the administration of the project is provided by a not-for-profit organization named Open Source Matters. The foundation holds the intellectual property rights to the brand name and related assets and provides legal shelter for the project. The foundation accepts donations of cash and services. The donations go to cover the basic overhead and operating costs, like the servers, the hosting infrastructure, and promotional expenses. People are not directly paid to work on Joomla!

Open Source systems like Joomla! are offered free of charge for users. Often, people ask how this is possible. How is it that they can afford to give something valuable away for free? That is a complex question and in the case of a community-driven Open Source project, the answer is not always obvious. Community members work for free largely out of a desire for recognition, status, and access to expertise. Some are even more idealistic and participate for the pleasure of being part of something bigger than themselves and to feel like they have given something back to a group that has helped them in some fashion.

The Joomla! Team is divided into two working groups: Production and Community. Each group has a set of leaders who together make up the Joomla! leadership team. These groups help direct development and provide structure for the community efforts.

Becoming a part of the community

Volunteers are the lifeblood of Joomla! If you are inclined to get involved with the project, do so. The easiest way to start is by registering on the Joomla! Forum site and then contributing by helping others in the forums. Many users come to the forums with very basic questions; others have more complex technical issues. The forums always need people who are willing to take the time to answer these questions and help others work their way through problems. The success of the forums hinges on shared knowledge; therefore, it's essential for those with experience to assist others.

After you have participated in the forums for a while, you will be more familiar with the team members and how things work in general. If you want to do more, you can then approach a team member or the leader of a working group and ask to become involved on a more official level.

Open source projects that are the size and scope of Joomla! need all sorts of people. Don't worry about whether you have sufficient technical skills or the right type of knowledge. The most important requirements are a willingness to donate your time and a sincere desire to help others. Opportunities exist for everyone who is interested in helping.

Summary

In this introductory chapter, you looked at the basics of the Joomla! CMS and at open source in general. The chapter covered

- Appreciating the advantages of using open source and what open source means to you as a user of open source software.
- Assessing the pros and cons of using Joomla! and how they impact your decision to choose the system.
- Understanding how Joomla! works, from the system architecture to the role of underlying technologies.
- Learning how the Joomla! community is organized and how you can get involved with the project.

In the next chapter, I explain how to obtain the Joomla! installation files and how to set up Joomla! on your server.