

# Evaluating Solutions to Hosting Community Maintained Materials with Content Management



Systems  
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## Abstract

This research compares several solutions to develop a website to host and share community maintained OpenSource educational materials as part of a NSF funded training grant. The goal is to build a system that is easy for instructors to explore, find and modify content to fit their needs. Any modified content should be easily shared back with the community. At the same time the content should be secure and easy to maintain. Instead of recreating the wheel, this research explored the possibility of slightly modifying existing Content Management Systems (CMS). The CMS are categorized using some of their basic attributes (ex: static/dynamic, OpenSource/proprietary, local/remote hosting) and then evaluated based on their usability, security and ease of maintenance. More specifically, this work looks into multiple static site generators and put together templates and prototypes using Jekyll, Pelican and comparing them to dynamic systems such as, Wordpress and Drupal. No CMS is perfect and thus a solution should be selected based on the design criteria and goals of the individual website. However, many areas of education could benefit from a common, easily adapted CMS focused on education materials. This work attempts to identify and provide instructions to quickly develop such a system tailored to the needs of the individual communities.

## CyberAmbassadors Grant

- CyberAmbassadors is a grant awarded to my supervisor Dr. Dirk Colbry by the National Science Foundation.
- The main goal of the grant is to develop curriculum that focuses on professional skills (communications, teamwork, leadership) within the context of large scale, multi-disciplinary computational research

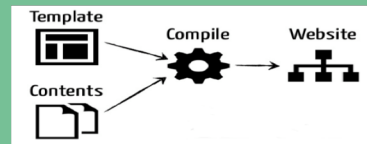


## Content Management Systems

- Our group needed a place to host our curriculum as open source content on the web. I was tasked with finding the most effective way to do this.
- There were two types of sites that we looked in to: Static and Dynamic.
- These two types led into the research of whether to use Jekyll, Pelican, WordPress, or Drupal.

## Static Sites

- Static sites are a way to generate HTML-only webpages using raw data (such as markdown) and templates.
- Static sites are secure, fast, and easy to use.
- This method works best with smaller websites though.
- Jekyll and Pelican are static site generators that I looked into.



### Jekyll

- Jekyll is static site generator written in Ruby used for personal or project sites.
- Jekyll is simple and fast because of the markdown compatibility and pre rendered html pages.
- Jekyll is the program used by the Software Carpenters, which is where I got the idea to use Jekyll. I took one of their templates and manipulated it to fit our needs

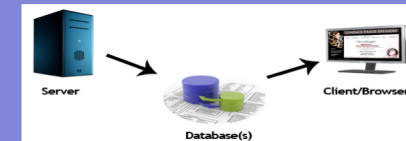
### Pelican

- Pelican is a static site generator, written in Python, that requires no database or server-side logic.
- Similar to Jekyll, Pelican uses markdown to generate the HTML pages.
- Pelican is better for blog post rather than content managements systems.
- Our CyberAmbassadors blog page was created with Pelican.

	Jekyll	Pelican	WordPress	Drupal
Open Source	X	X	X	X
Static	X	X		
Dynamic			X	X
Good with smaller site	X	X		
Good with larger Sites			X	X
Easy to maintain	X	X		

## Dynamic Sites

- Dynamic websites contain Web pages that are generated in real-time. These pages include Web scripting code, such as PHP(Hypertext Preprocessor).
- Dynamic sites are best for larger websites because they access a data base. This means the user only needs to change the database record to change content.
- Dynamic sites tend to be less secure.
- WordPress and Drupal are examples of dynamic sites.



## WordPress

- WordPress is a free and open-source content management system .
- WordPress is actually the most used program for content management systems. This is because of its ease of use.
- It also provides many plug-ins and extensions for custom development.

## Drupal

- Drupal is free, open source software that can be used by individuals or groups of users to create and manage many types of web sites.
- Drupal provides many ways to customize your site but it is not great to use for content management systems.

## References

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- [https://stackshare.io/stackups/hugo\\_2-vs-jekyll-vs-pelican](https://stackshare.io/stackups/hugo_2-vs-jekyll-vs-pelican)
- <http://www.spiderwriting.co.uk/static-dynamic.php>