

# WordPress Plugin Development

101

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# My Assumptions

About You

## 1. You know what a plugin is

- It extends WordPress core functionality

## 2. You know where plugins live

- /wp-content/plugins/{plugin-name}
- /wp-content/mu-plugins/{plugin-file-name}

## 3. You know how to write functional PHP code

- Quickly read [www.codecademy.com/en/tracks/php](http://www.codecademy.com/en/tracks/php) now!



# Basic Plugin File Structure

/wp-content/plugins

↳ /lc-wcbne-demo

Folder name needs to be **unique in the WordPress.org plugin repo**, all lowercase, use hyphens as separators. This is your plugin “**slug**”.

↳ lc-wcbne-demo.php

File name needs to be the same as the folder “**slug**” with a **.php** extension. This is the main plugin file aka plugin **bootstrap** file. WordPress will read & action this file first.



# Plugin File Header Block

lc-wcbne-demo.php

```
<?php
/*
 * Plugin Name: LC WCBNE 2015 Demo
 * Plugin URI: http://
www.yourpluginurlhere.com/
 * Version: 1.0.0
 * Author: Wil Brown
 * Description: What does your plugin do and
what features
 * does it offer...
 * Licence: GPL3
*/
```

First block in your bootstrap plugin file **must be** a comment block.  
Defines plugin: Name, URI, Version, Author, Description & Licence.  
More: [https://codex.wordpress.org/Writing\\_a\\_Plugin#File\\_Headers](https://codex.wordpress.org/Writing_a_Plugin#File_Headers)



# Naming Conventions

Best Practice

All files, variables & function should be:

- Descriptive
- Prefixed with a unique identifier

This is done to **prevent conflicts** with other active plugins.

function save\_post() = **BAD**

function lcwcbne\_save\_post() = **BETTER**

# Folder Structure

Best Practice

/lc-wcbne-demo

lc-wcbne-demo.php

uninstall.php

/admin

/css

/images

/includes

/js

/settings

You can structure your plugin files & folders the way you want. This example groups similar types of files together.

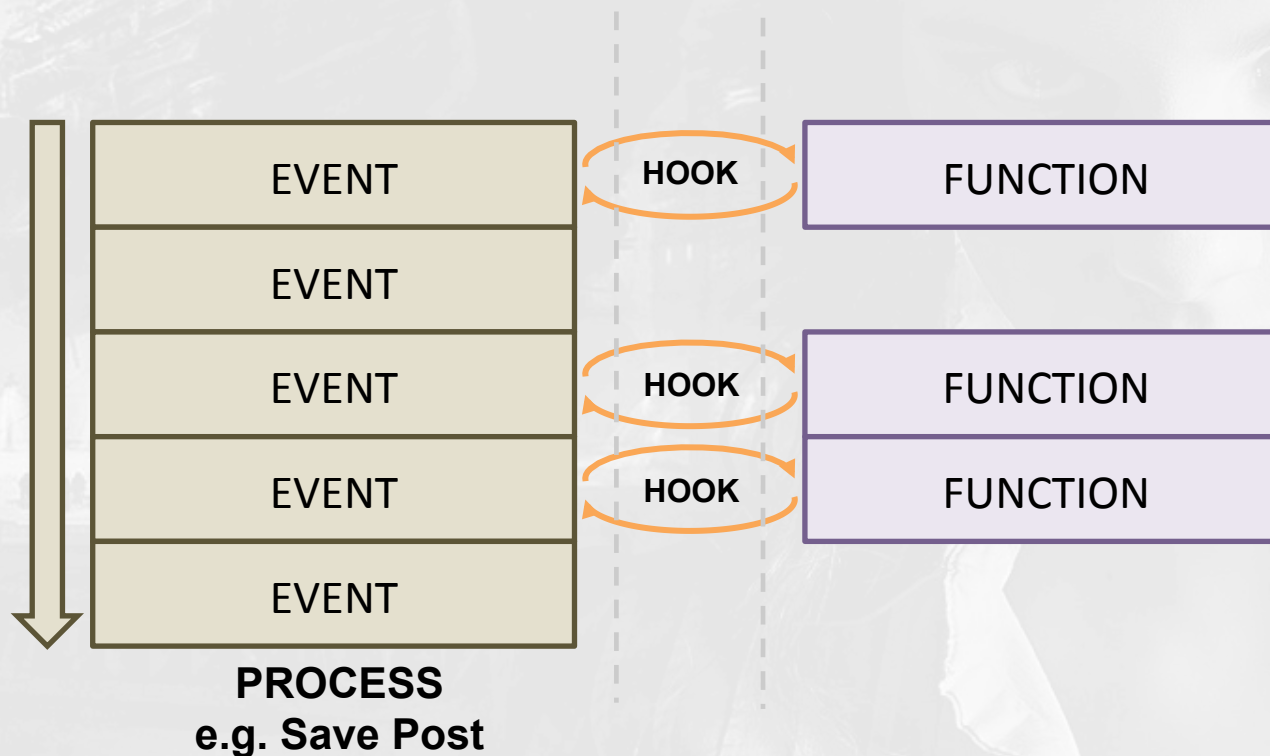
Another example would be to separate admin from front-end files.

For more best practice tips:  
<https://developer.wordpress.org/plugins/the-basics/best-practices/>

# Talking to WordPress

WordPress is an **event driven** app.

You “Hook” into events which call your functions.





**BRACE YOURSELVES**

**PHP CODE IS COMING**

imgflip.com

canvas  
The Online Meme Maker

# Let's Talk About Hooks

No fish were harmed during the making of this presentation



No not these types of hooks

# Let's Talk About Hooks

WordPress has 2 types of hooks:

## Action

PHP function that is run **at** a specific event

```
add_action('name', 'callback_function');
```

## Filter

PHP function associated with a specific action

Used to **change** the code/output of that action

```
add_filter('name', 'callback_function');
```



# Action Hook Example

Append stuff to the footer area before </body>

```
function my_footer_stuff(){  
    echo "<p>Blimey is that the end already?</p>";  
}  
add_action('wp_footer', 'my_footer_stuff');
```

Action Hook

Your Function

# wp\_footer Hook

Found in /wp-includes/general-template.php

```
2208
2209  /**
2210   * Fire the wp_footer action
2211   *
2212   * @since 1.5.1
2213   */
2214  function wp_footer() {
2215      /**
2216       * Print scripts or data before the closing body tag on the front end.
2217       *
2218       * @since 1.5.1
2219       */
2220      do_action( 'wp_footer' );
2221  }
2222
```

← Here I am

# Filter Hook Example

Append stuff to the end of a post content.

```
function extra_content( $content ){  
    return $content . "<p>Spiffing read wot?</p>";  
}  
add_filter('the_content', 'extra_content');
```

Action Hook

Your Function



# the\_content Hook

Found in /wp-includes/post-template.php

```
212  /**
213   * Display the post content.
214   *
215   * @since 0.71
216   *
217   * @param string $more_link_text Optional. Content for when there is more text.
218   * @param bool $strip_teaser Optional. Strip teaser content before the more text. Default is false.
219   */
220  function the_content( $more_link_text = null, $strip_teaser = false ) {
221      $content = get_the_content( $more_link_text, $strip_teaser );
222
223      /**
224       * Filter the post content.
225       *
226       * @since 0.71
227       *
228       * @param string $content Content of the current post.
229       */
230      $content = apply_filters( 'the_content', $content );
231      $content = str_replace( ']]>', ']]>]', $content );
232      echo $content;
233  }
```

Here I am

# Priorities & Arguments

A 3<sup>rd</sup> argument for actions & filters specifies priority. WordPress default = 10.

Use lower priority to run before WordPress hooks.

A 4<sup>th</sup> argument specifies # of additional args used by **do\_action()** and **apply\_filters()**. Default = 1.

# Activate, Deactivate & Uninstall

Three major functions that all plugins do. We can hook into those!

```
register_activation_hook($file, $function);
```

```
register_deactivation_hook($file, $function);
```

```
register_uninstall_hook($file, $callback);
```

The **uninstall.php** file is preferred method for uninstalling a plugin. The file is called first if found then the hook.



# Activate = Set Stuff Up

lc-wcbne-demo.php

Perhaps write your plugin version to the

database?

```
function myplugin_activate() {  
    $version = myplugin_get_version();  
    update_option( 'myplugin_ver', $version);  
}
```

```
register_activation_hook( __FILE__,
```

```
'myplugin_activate');
```

This means the  
current file

# Deactivate = Disable Stuff

lc-wcbne-demo.php

Perhaps remove wp-cron jobs and user

```
function myplugin_deactivate() {  
  
    wp_clear_scheduled_hook( 'lc_daily_security_scan' );  
    remove_role( 'security_manager' );  
}
```

```
register_deactivation_hook( __FILE__,  
myplugin_deactivate );
```

**Remember that deactivation is not uninstall. Don't go deleting options!**

# Uninstall = Clean Stuff Up

uninstall.php

**Delete options, transients and other**

```
if ( !defined( 'WP_UNINSTALL_PLUGIN' ) )  
die;
```

Security check against  
manual script execution

```
// Delete version option from DB  
delete_option( 'myplugin_ver' );
```

Pro Tip

**You can always create a plugin setting to give users a choice of deleting or leaving**

@LimeCanvasWil #WCBNE

# Lets Build Something

LC Branding

## Brand Your Clients' Login & Dashboard

- Remove “helpful” login errors
- Adds a custom login logo
- Adds a new Dashboard footer
- Removes some Dashboard widgets
  - Quick Draft, WordPress News
- Remove WordPress “node” from Admin Bar
- Adds your own custom Dashboard widget RSS feed

Code is at: <https://github.com/LimeCanvasWil/lc-branding>





# Setting Up

- New **lc-branding** folder in `/wp-content/plugins/`
- New **lc-branding.php** file in that folder

```
<?php
/*
 * Plugin Name: LC Branding
 * Plugin URI: http://www.limecanvas.com/
wordpress-plugins/
 * Version: 1.0.0
 * Author: Wil Brown
 * Description: Branded login and Dashboard
 * Licence: GPL3
*/

// If this file is called directly, abort.
if ( ! defined( 'WPINC' ) ) {
    echo '<p>Activate this plugin from the
dashboard.</p>';
    die;
}
```

# DEMO TIME

Customise Login



ERROR: The password you entered for the username Wil is incorrect. [Lost your password?](#)

Username

Wil

Password

Remember Me

Log In

[Lost your password?](#)

[← Back to WP Current](#)



LimeCanvas  
WEB DESIGN & MARKETING

Login failed. Check your credentials.

Username

Wil

Password

Remember Me

Log In

[Lost your password?](#)

[← Back to WP Current](#)

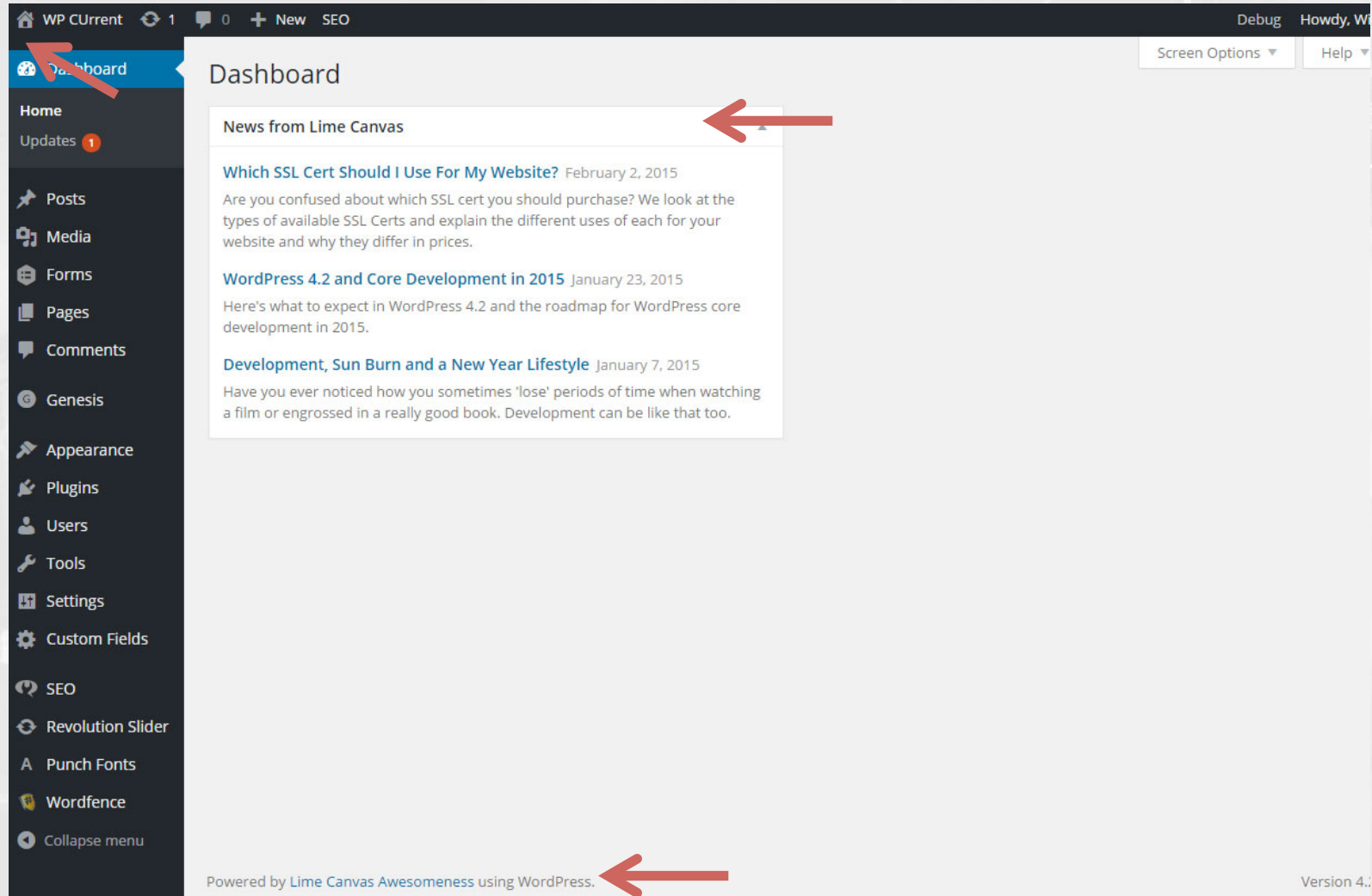
# DEMO TIME

Dashboard Before

The screenshot shows the WordPress dashboard interface. A dark sidebar on the left contains navigation links: Home, Updates (1), Posts, Media, Forms, Pages, Comments, Genesis, Appearance, Plugins, Users, Tools, Settings, Custom Fields, SEO, Revolution Slider, Punch Fonts, Wordfence, and Collapse menu. The main content area is titled 'Dashboard' and includes several widgets: 'At a Glance' (1 Post, 1 Page, WordPress 4.2.2 running Genesis theme), 'Activity' (Recently Published: Jun 27th, 8:00 am, Hello world!), 'Comments' (From Mr WordPress on Hello world! #, Hi, this is a comment...), 'Wordfence activity in the past 2 weeks', 'Forms' (You don't have any forms...), 'Quick Draft' (Title, What's on your mind?, Save Draft), and 'WordPress News' (WordPress 4.2.2 Security and Maintenance Release, WPTavern: Fast Page Switch Adds a Quick Way to Switch Between Pages in the WordPress Backend, WPTavern: WPWeekly Episode 194 - Celebrating WordPress' 12th Birthday with Matt Mullenweg, WPTavern: WordPress Theme Review Team is Cracking Down on Violations of the Presentation vs. Functionality Guideline, Popular Plugin: Responsive Lightbox by dFactory (Install)). A footer message says 'Thank you for creating with WordPress.' The top right corner shows 'Debug' and 'Howdy, Wil'. The bottom right corner shows 'Version 4.2.2' and the 'LimeCanvas' logo.

# DEMO TIME

Dashboard After



WP Current 1 0 + New SEO Debug Howdy, W

Dashboard

Home

Updates 1

Posts

Media

Forms

Pages

Comments

Genesis

Appearance

Plugins

Users

Tools

Settings

Custom Fields

SEO

Revolution Slider

Punch Fonts

Wordfence

Collapse menu

## Dashboard


### News from Lime Canvas

[Which SSL Cert Should I Use For My Website?](#) February 2, 2015  
Are you confused about which SSL cert you should purchase? We look at the types of available SSL Certs and explain the different uses of each for your website and why they differ in prices.

[WordPress 4.2 and Core Development in 2015](#) January 23, 2015  
Here's what to expect in WordPress 4.2 and the roadmap for WordPress core development in 2015.

[Development, Sun Burn and a New Year Lifestyle](#) January 7, 2015  
Have you ever noticed how you sometimes 'lose' periods of time when watching a film or engrossed in a really good book. Development can be like that too.

Powered by Lime Canvas Awesomeness using WordPress.

Version 4.0:  LimeCanvas  
Web Design & Marketing

# OO Plugin Boilerplates

- [WordPress Plugin Boilerplate](#): OO - A foundation for WordPress Plugin Development that aims to provide a clear and consistent guide for building your plugins.
- [WordPress Plugin Bootstrap](#): OO - Basic bootstrap to develop WordPress plugins using Grunt, Compass, GIT, and SVN.
- [WP Skeleton Plugin](#): OO - Skeleton plugin that focuses on unit tests and use of composer for development.



# Coding Standards

## CORE HANDBOOK

Search

### CHAPTERS

#### About WordPress

- Project Organization
- Our Philosophies
- Communication
- How the Release Cycle Works
  - Features as Plugins
  - Version Numbering
- Licensing & Copyright
- Getting Started at a Contributor Day

#### Contribute With Testing

- Beta Testing
- Reporting Bugs

## PHP Coding Standards

Reply | Follow | Watch

Some parts of the WordPress code structure for PHP markup are inconsistent in their style. WordPress is working to gradually improve this by helping users maintain a consistent style so the code can become clean and easy to read at a glance.

Keep the following points in mind when writing PHP code for WordPress, whether for core programming code, plugins, or themes. The guidelines are similar to [Pear standards](#) in many ways, but differ in some key respects.

See also: [PHP Documentation Standards](#).

### PHP #

#### Single and Double Quotes #

Use single and double quotes when appropriate. If you're not evaluating anything in the string, use single quotes. You should almost never have to escape quotes in a string, because you can just alternate your quoting style, like so:

### TOPICS

#### PHP

- Single and Double Quotes
- Indentation
- Brace Style
- Regular Expressions
- No Shorthand PHP Tags
- Remove Trailing Spaces
- Space Usage
- Formatting SQL statements
- Database Queries
- Naming Conventions
- Self-Explanatory Flag Values for Function

<https://make.wordpress.org/core/handbook/coding-standards/php/>



# Security

## **NEVER TRUST USERS!**

**Sanitize all input & Escape all output**

[http://codex.wordpress.org/Data Validation](http://codex.wordpress.org/Data_Validation)

## **NEVER TRUST ACTION REQUESTS**

**Prevent malicious attacks by validating all actions with  
a nonce**

[http://codex.wordpress.org/WordPress Nonces](http://codex.wordpress.org/WordPress_Nonces)

# Plugin Distribution

On WordPress.org

## There are only a few restrictions

1. Your plugin must be compatible with the [GNU General Public License v2](#), or any later version. We strongly recommend using the same license as WordPress — “GPLv2 or later.”
2. The plugin must not do anything illegal, or be morally offensive (that’s subjective, we know).
3. You have to actually use the [Subversion](#) repository we give you in order for your plugin to show up on this site. The WordPress Plugins Directory is a hosting site, not a listing site.
4. The plugin must not embed external links on the public site (like a “powered by” link) without explicitly asking the user’s permission.
5. If you don’t specify a compatible license, what you check in is considered GPLv2 or later.
6. We also have a large list of [detailed guidelines](#), but mostly they say how not to be a spammer.

## It’s pretty simple

1. Sign up.
2. Within some vaguely defined amount of time, your plugin will be manually reviewed. You may be emailed and asked to provide more information.
3. Once approved, you’ll then have access to a [Subversion Repository](#) where you’ll store your plugin.
4. Once you put your plugin (and a [readme file!](#)) in that repository, it will shortly be automatically entered into the [plugins browser](#).
5. Check out the [FAQ](#) for more information.

## Readme files

To make your entry in the plugin browser most useful, each plugin should have a readme file named `readme.txt` that adheres to the WordPress plugin readme file standard. You can put your readme file through the [readme validator](#) to check it.

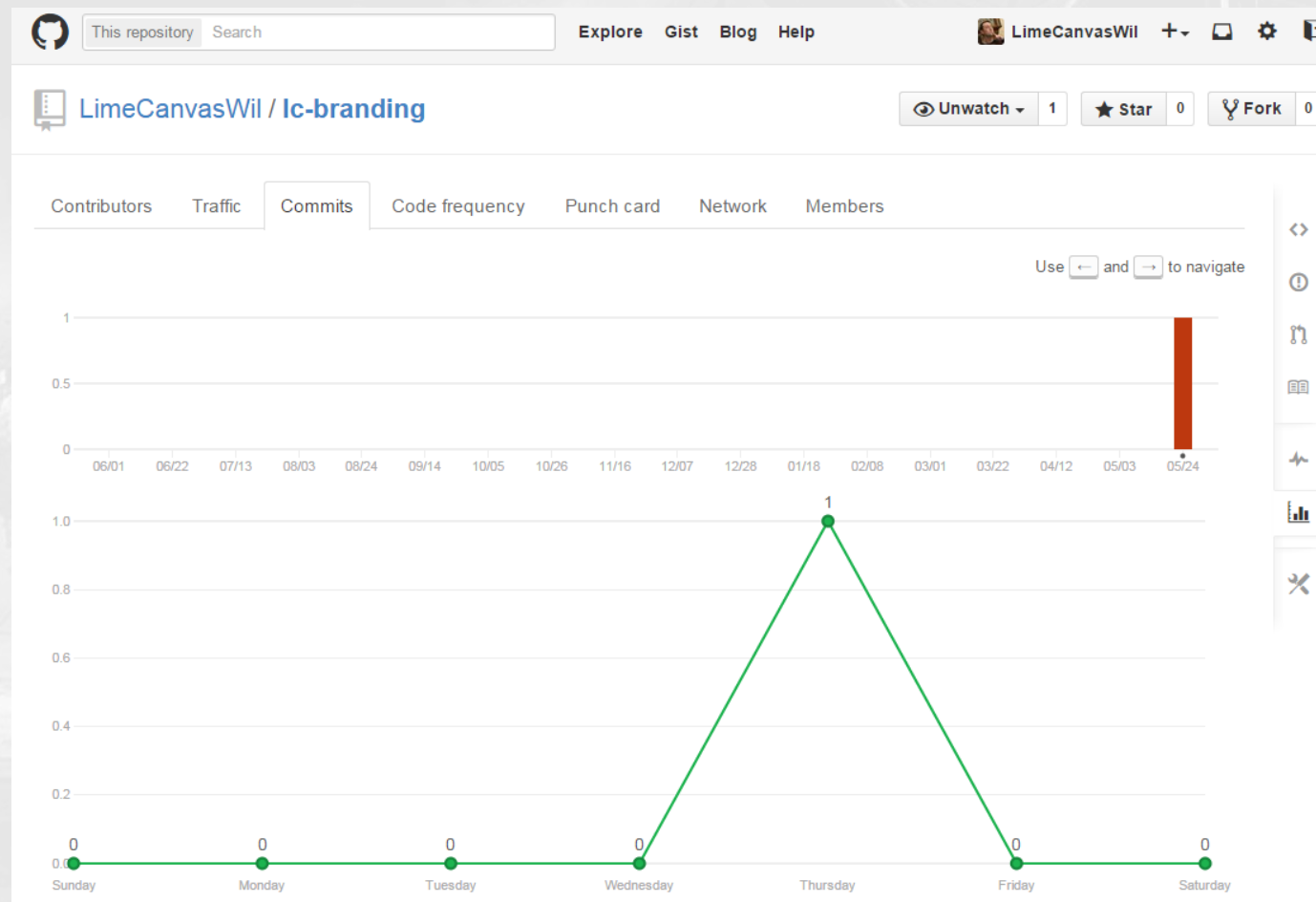
<https://wordpress.org/plugins/about/>

@LimeCanvasWil #WCBNE



# Plugin Distribution

On GitHub



<https://github.com>

@LimeCanvasWil #WCBNE



# Additional Stuff

Official blog for the WordPress Plugin Review team

<https://make.wordpress.org/plugins/>

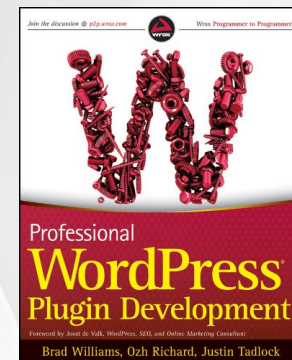
Tutorials Tuts+

<http://code.tutsplus.com/categories/wordpress>

WordPress.tv, Local Meetups & WordCamps

Books

<http://www.wrox.com/WileyCDA/WroxTitle/Professional-WordPress-Plugin-Development.productCd-0470916222.html>





# Who Me?

- WordPress Developer since 2008
- Plugins, APIs & Systems Integrations
- 20+ years in IT: Dev & SysOps
- Tech Director & Lead Developer at Lime Canvas

[www.limecanvas.com](http://www.limecanvas.com)

@LimeCanvasWil

♥ Pizza & Beer



# Image Credits

Background: Stephane flickr.com/photos/stf-o/

Last slide: limecanvas.com

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[24] limecanvas.com

[26] wordpress.org

[28] wordpress.org

[29] github.com

[30] wrox.com

Questions Anyone?

thank you...

@LimeCanvasWil