Jamie Oastler

Ottawa
WordCamp
2016

We can write 30 features in 30 lines of code today

and other WordPress Enhancements

What will this lightning strike?

- Hooks
  - Actions
  - Filters
- Tools
  - How to find the hooks you need
  - How to understand what they do
- 30 features in 30 lines of code
  - ?!!#WTFBBQ!!?

Who's thundering thru it?

- Jamie Oastler
  - Carleton Graduate
  - Lead WordPress Developer @ Innovapost
  - Farmer
- Where / How to reach me online?

idealienstudios.com

jamie@idealienstudios.com

@idealien

HOOKS

Hooks are provided by WordPress to allow your plugin to 'hook into' the rest of WordPress; that is, to call functions in your plugin at specific times, and thereby set your plugin in motion.

There are two kinds of WordPress hooks:

https://codex.wordpress.org/Plugin_API

ACTIONS

Actions are triggered by specific events that take place in WordPress. An action is a custom php function defined in your plugin (or theme).
The function is hooked (set to respond) to some of these events.

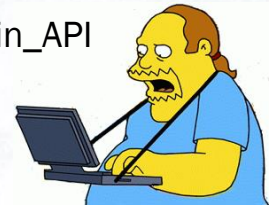
```
add_action ( string $tag,
        callable $function_to_add,
        int $priority = 10,
        int $accepted_args = 1 )
```

```
do_action ( string $tag,  $arg = '' )
```

The basic steps to make this happen are:

1. Find action you want to hook into - do_action()
2. Create a function in your theme or plugin that does something and hook it via add_action()
3. Profit

https://codex.wordpress.org/Plugin_API



ACTIONS

1) Plugin – UCantTouchThis

```
for ($i = 0; $i < 3; $i++) {
    echo "You can't touch this";
}

do_action('break it down');
```

2) Functions.php

```
add_action('break it down', 'stop', 10);
function stop() {
    echo "<h1>Hammer Time</h1>";
}
```

3) Result:

You can't touch this

You can't touch this

You can't touch this

[Break It Down → Stop]

HAMMER TIME

FILTERS

Filters are functions that WordPress passes data through, at certain points in execution, just before taking some action with the data. Filters sit:

- Between the database and the browser (when generating pages)
- Between the browser and the database (when adding content to the db)

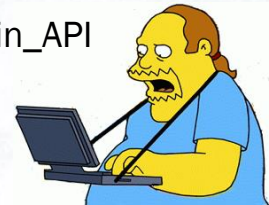
```
add_filter ( string $tag,
        callable $function_to_add,
        int $priority = 10,
        int $accepted_args = 1 )
```

```
apply_filters ( string $tag, mixed $value )
```

The basic steps to make this happen are:

1. Find filter you want to hook into – apply_filters()
2. Create a function in your theme or plugin that returns a value and hook it using the add_filter() function
3. Profit

https://codex.wordpress.org/Plugin_API



FILTERS

1) WordPress Core

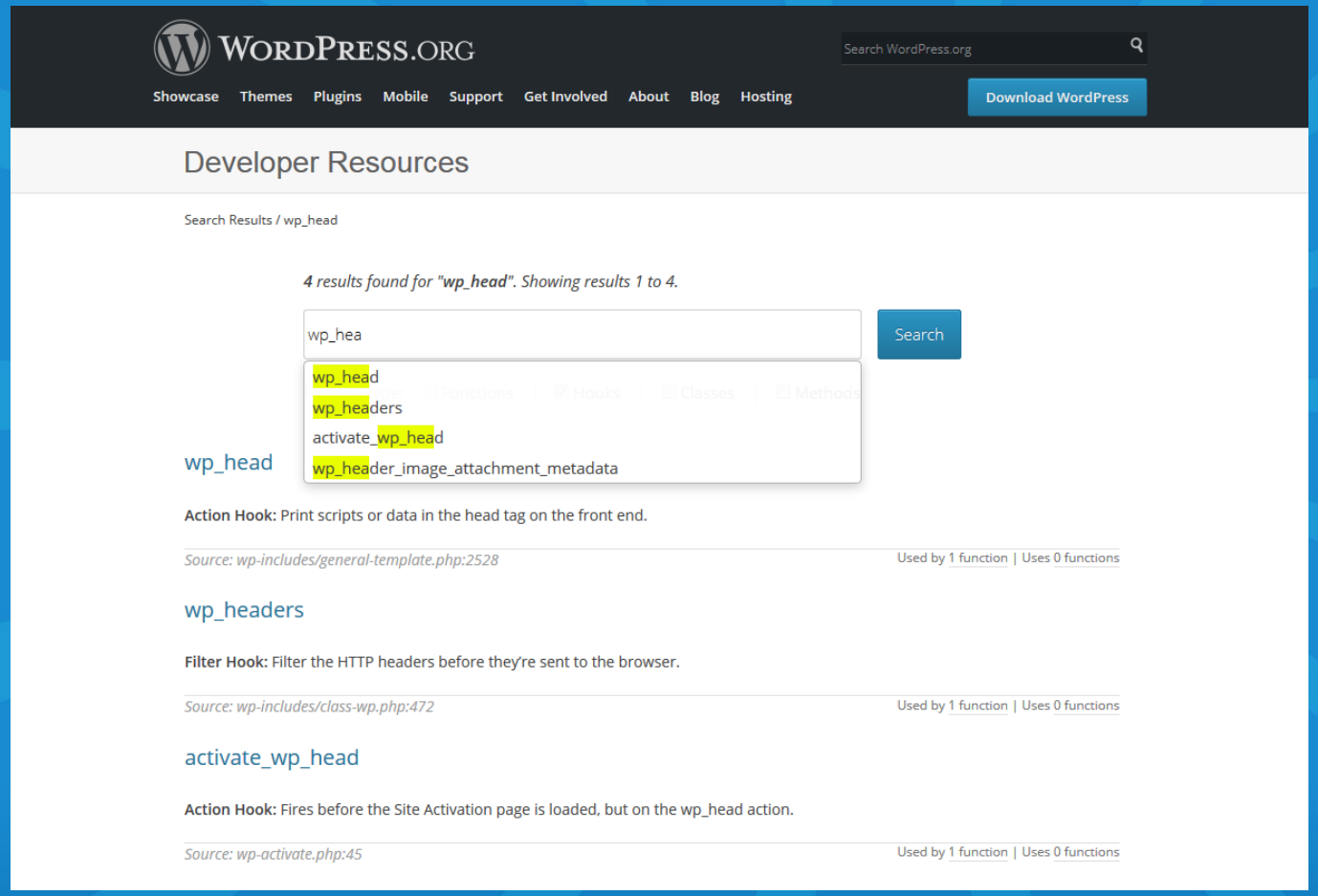
```
function the_content( $more_link_text = null, $strip_teaser = false)  {
    $content = get_the_content( $more_link_text, $strip_teaser );
    $content = apply_filters( 'the_content', $content );
    $content = str_replace( ']]>', ']]&gt;', $content );
    echo $content;
}
```

2) Functions.php

```
add_filter('the_content', 'rickroll', 10);
function rickroll($content) {
    $content = "We're no strangers to love<br/>";
    $content .= "You know the rules and so do I<br/>";
    $content .= "A full commitment's what I'm thinking of<br/>";
    $content .= "You wouldn't get this from any other guy<br/>";
    return $content;
}
```

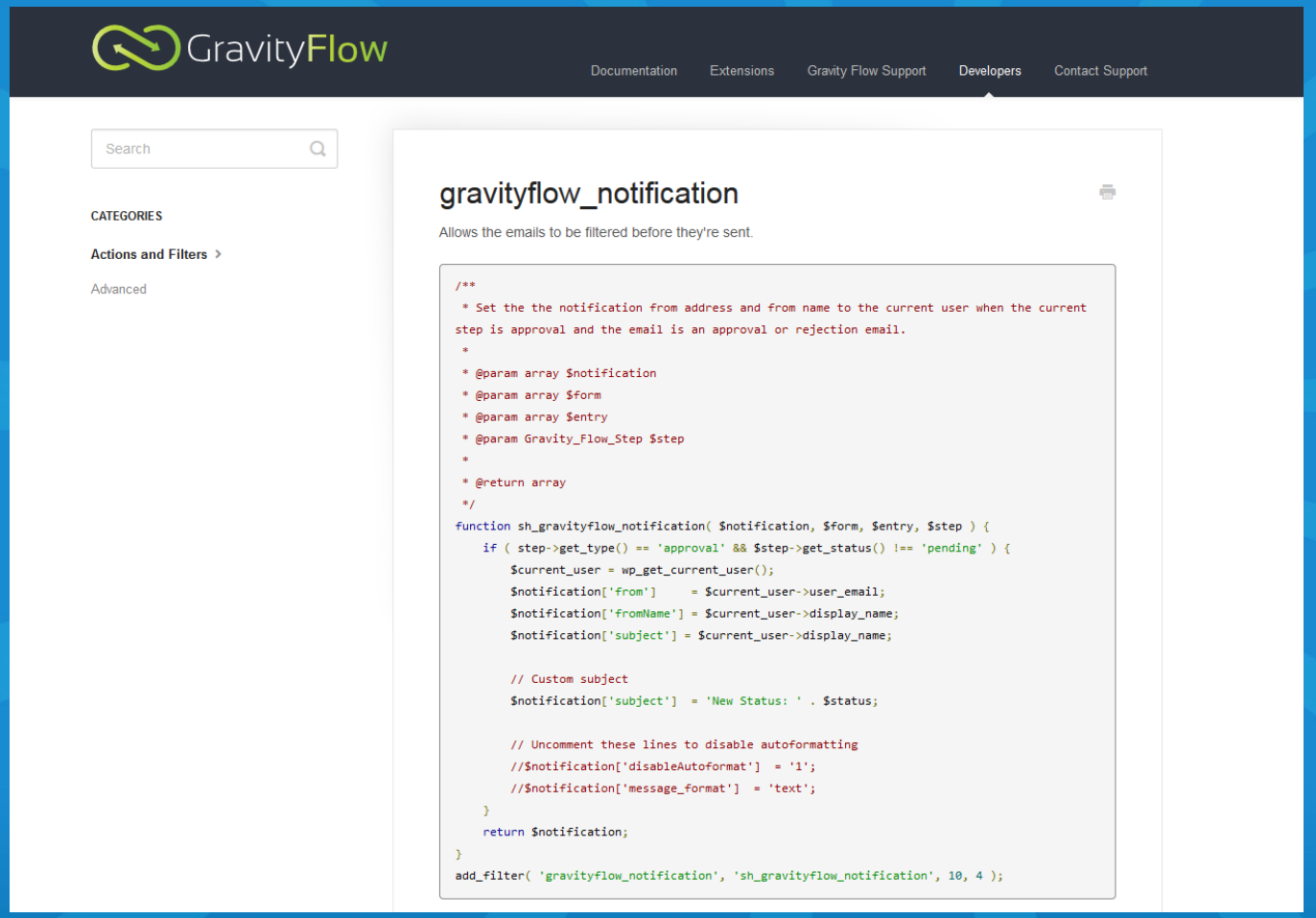
TOOLS

RTFM - https://developer.wordpress.org/reference



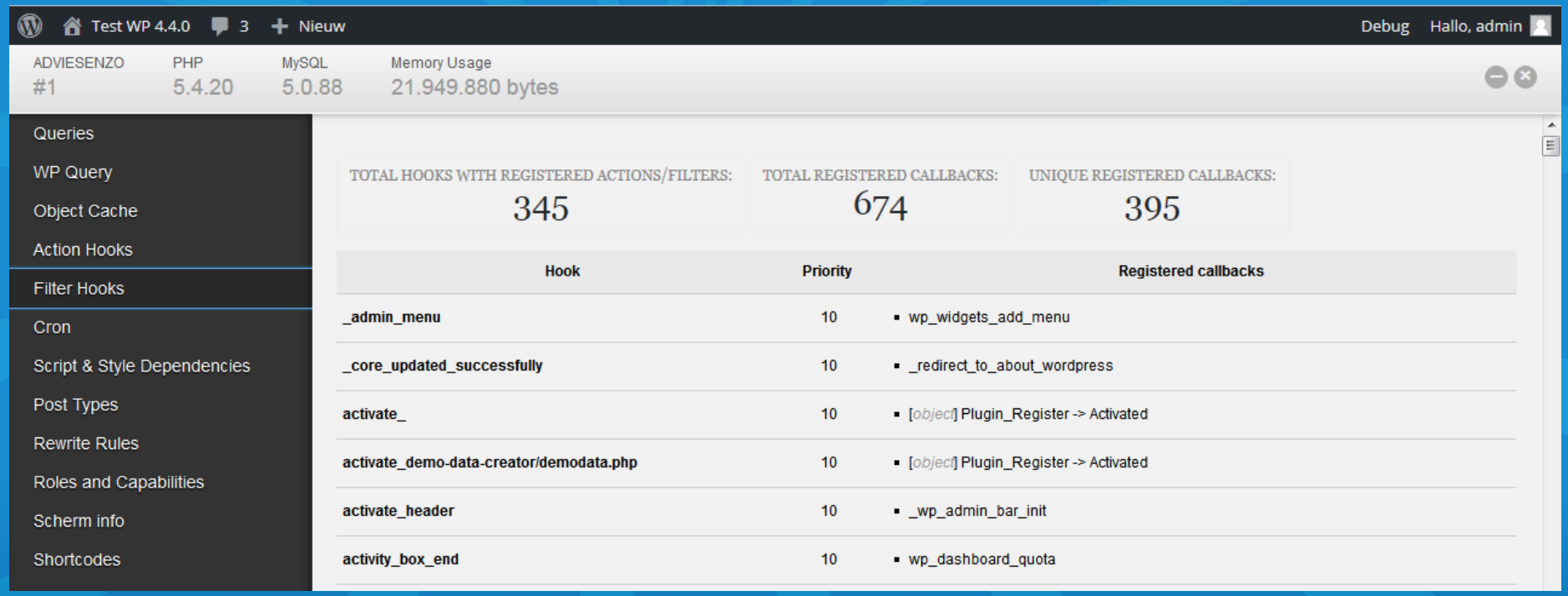
TOOLS

RTFM – Premium Plugins generally have premium documentation options



TOOLS

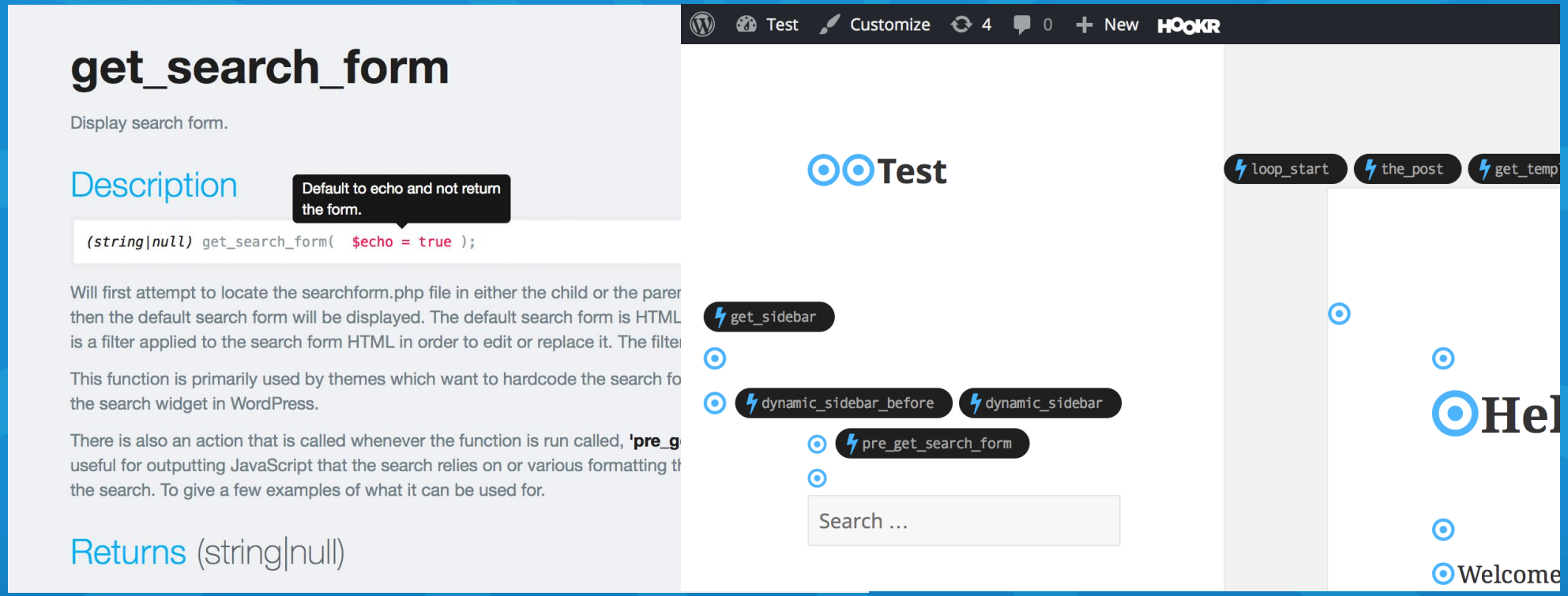
- Debug Bar
  https://en-ca.wordpress.org/plugins/debug-bar/
- Actions + Filters Add-On
  https://en-ca.wordpress.org/plugins/debug-bar-actions-and-filters-addon/



TOOLS

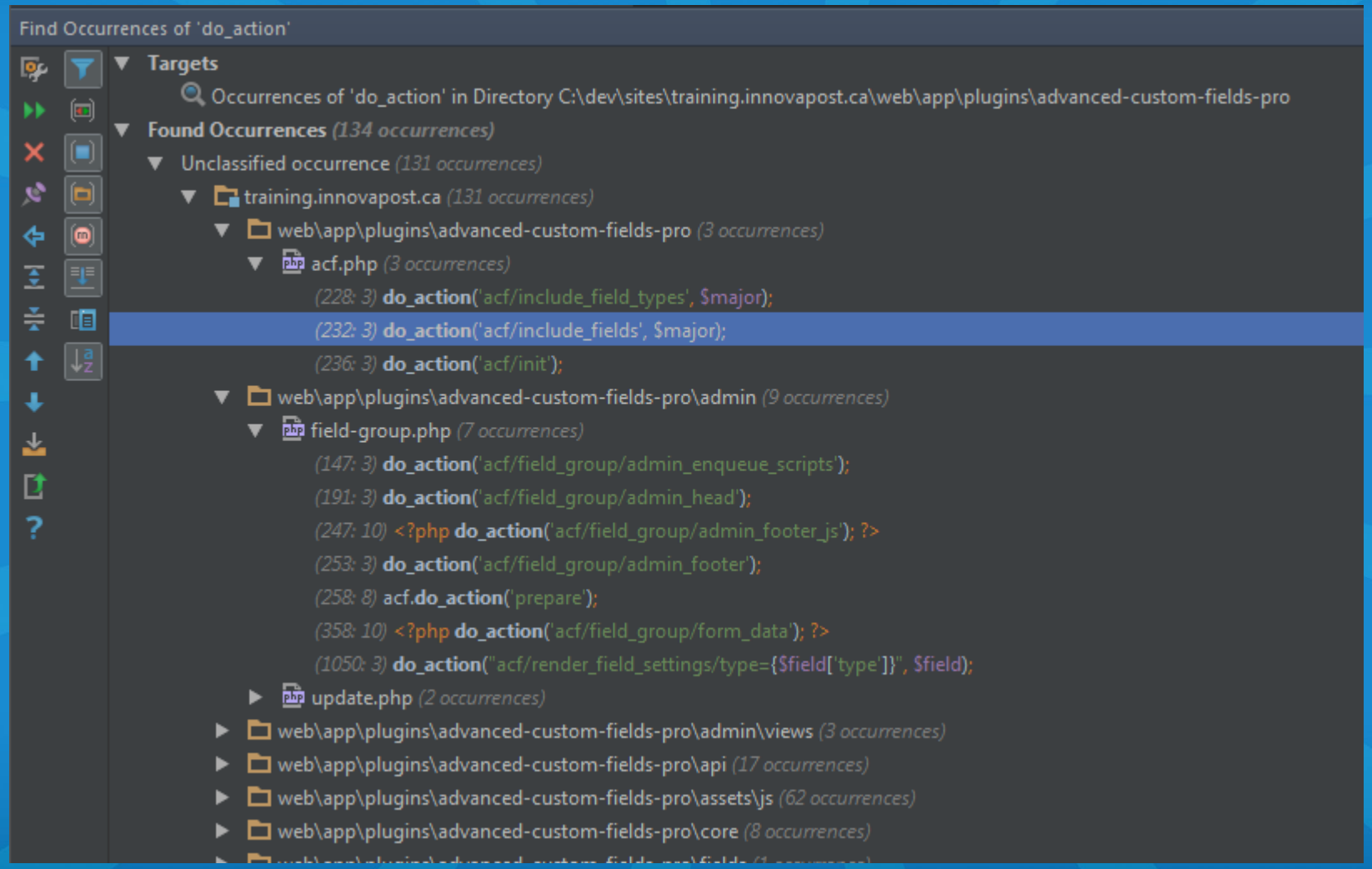
Hookr.io

- Index – Search actions + filters of WP core and 885 plugins
- Plugin – Real-time illustration of actions & filters that fire during page life cycle



TOOLS

Search The Source Code – do_action / apply_filters



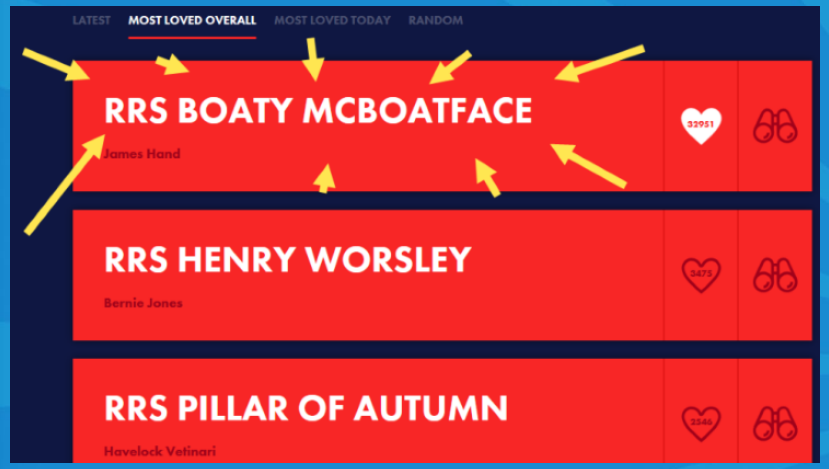
The Challenge:

30

CREATE FEATURES IN LINES OF CODE

OR LESS

FEATURE SUGGESTION + MEME MAKER



WHAT TO BUILD?

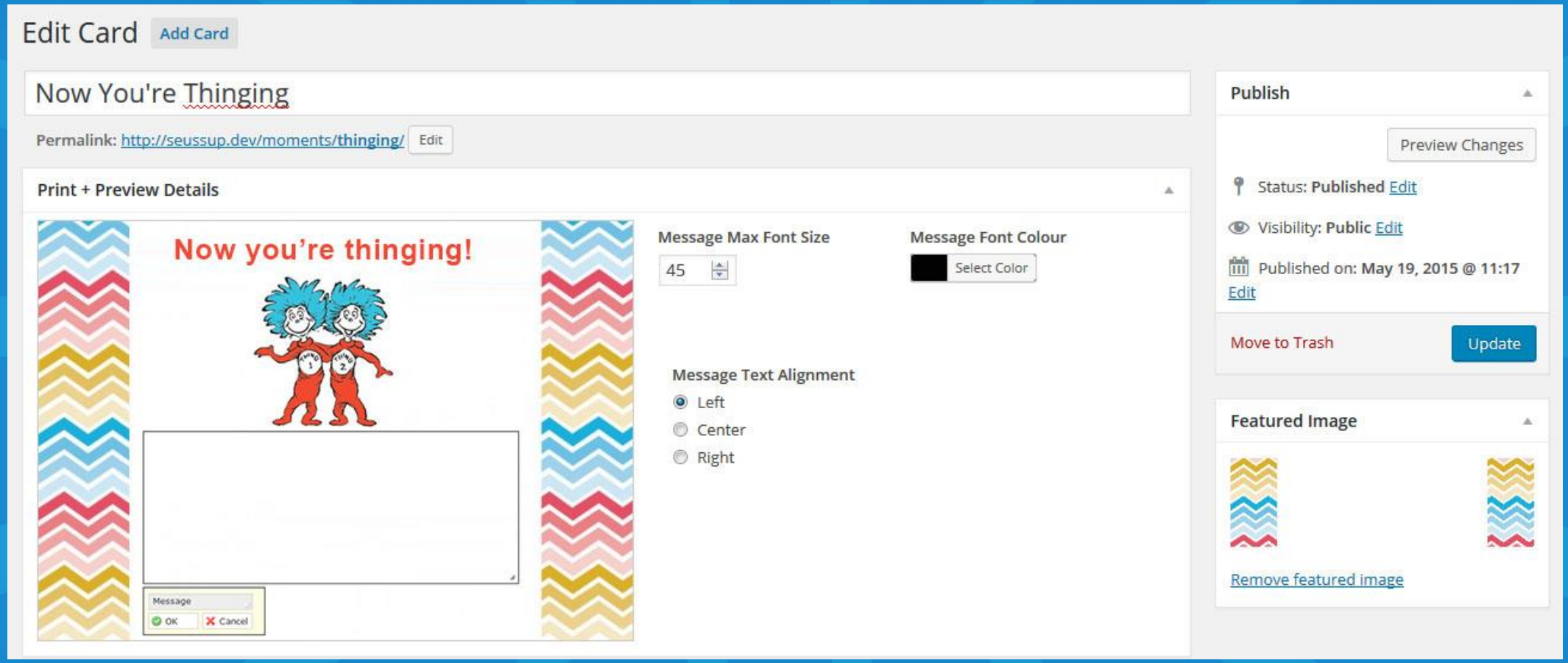
~~LET'S ASK THE INTERNET FOR IDEAS~~

FEATURE SUGGESTION + MEME MAKER

What's the plan, Stan?

- Memes
  - Image Annotation - https://github.com/flipbit/jquery-image-annotate
  - Custom Post Type - WCK
  - Meta Data – Advanced Custom Fields
- Sharing
  - Gravity Forms
  - GravityPDF (or mPDF or jsPDF)
- Net New Code:
  - add_action - admin_enqueue_styles for CSS / JS
  - GravityPDF Config + Template

FEATURE SUGGESTION + MEME MAKER



FEATURE SUGGESTION + MEME MAKER

Meme Maker

1 Card Selection 2 Card Details 3 Preview & Submit

Pick your meme *

Next

FEATURE SUGGESTION + MEME MAKER

1 Card Selection 2 Card Details 3 Preview & Submit

Submittor(s) *

Michael Corkum ×

Message *

A method to help people celebrate the successes they have in their community - like an employee recognition program.

Inspiration:
- kudosnow.com
- dueprops.com
- youearnedit.com

183 of 500 max characters

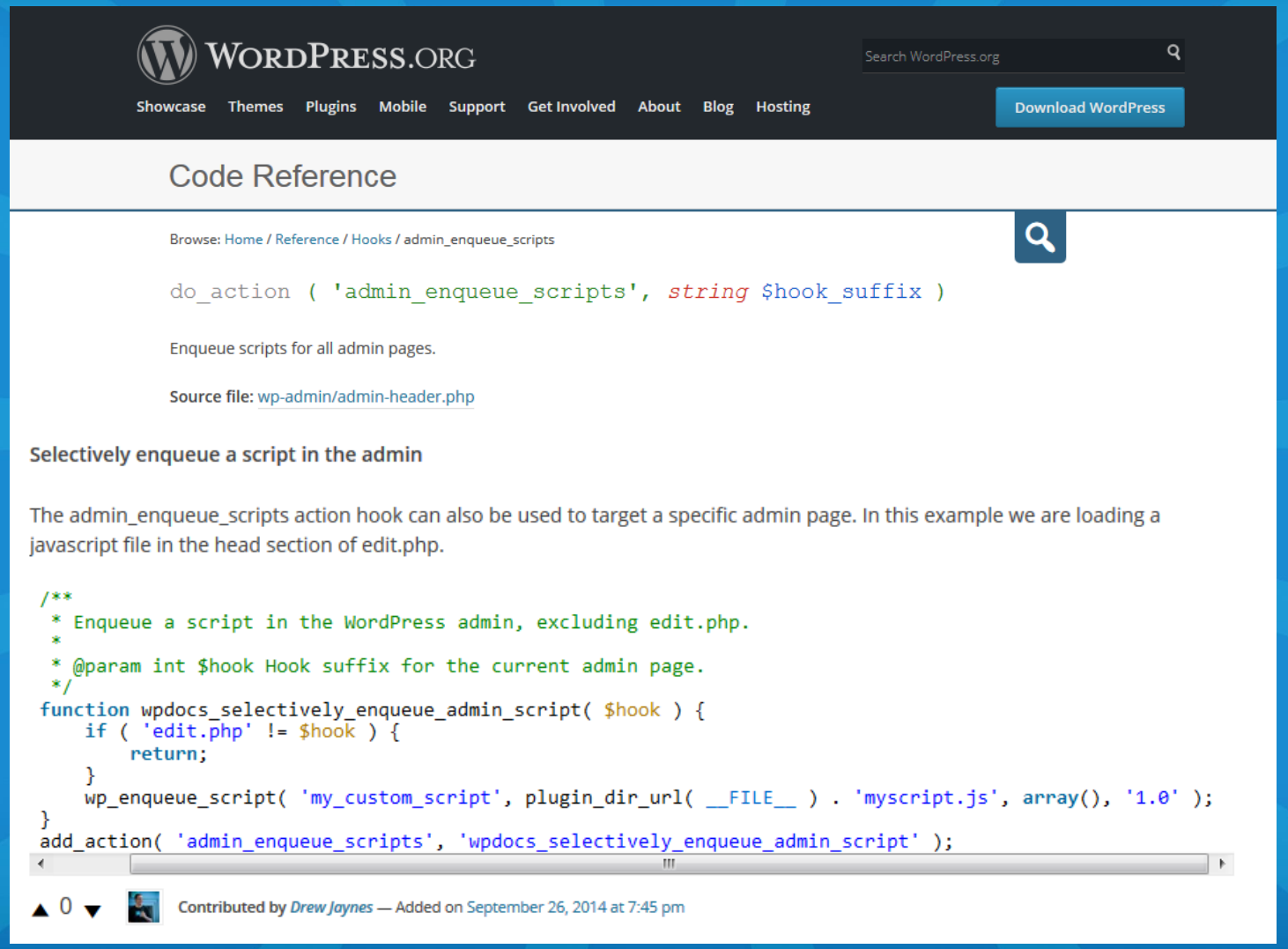
Previous Next

FEATURE SUGGESTION + MEME MAKER

Now you're thinging!

A method to help people celebrate the successes they have in their community like an employee recognition program. Inspiration: kudosnow.com, dueprops.com, youearnedit.com

FEATURE SUGGESTION + MEME MAKER



FEATURE SUGGESTION + MEME MAKER

```php
<?php
//Expectation that full-size versions are 1000x705
add_image_size( 'meme-annotate', 497, 350 );

//Setup CSS / JS on admin to allow annotation of image storing into post meta fields
add_action( 'admin_enqueue_scripts', 'enqueue_annotate_styles' );
add_action( 'admin_enqueue_scripts', 'enqueue_annotate_scripts' );

function enqueue_annotate_styles() {
    wp_enqueue_style( "jquery-annotate", plugin_dir_url( __FILE__ ) . 'css/annotate.min.css', array(), '1.0', 'all' );
    wp_enqueue_style( 'seussup-meme-admin', plugin_dir_url( __FILE__ ) . 'css/seussup-meme-admin.css', array(), '1.0', 'all' );
}

function enqueue_annotate_scripts() {
    wp_enqueue_script( "jquery-annotate", plugin_dir_url( __FILE__ ) . 'js/jquery.annotate.js', array( 'jquery', 'jquery-ui-core', 'jquery-ui-resizable' ), '1.0', false );
    wp_enqueue_script( 'seussup-meme-admin', plugin_dir_url( __FILE__ ) . 'js/seussup-meme-admin.js', array( 'jquery-annotate' ), '1.0', false );
}
```

```
(function( $ ) {
    'use strict';
    $(function() {
        if( $("#meme_annotation_box").length > 0 ) {
            //Override the annotation append (save) function with the ACF meta fields
            jQuery.fn.annotateImage.appendPosition = function (form, editable) {
                if (editable.note.id == "annotate-message") {
                    $("#meme_message_width input").val(parseInt(editable.area.width() / 497 * 100));
                    $("#meme_message_h_offset input").val(parseInt(editable.area.position().left / 497 * 100));
                    $("#meme_message_height input").val(parseInt(editable.area.height() / 350 * 100));
                    $("#meme_message_v_offset input").val(parseInt(editable.area.position().top / 350 * 100));
                }
            };
            var imgSrc = $(".attachment-post-thumbnail").attr("src");

            if (!imgSrc) {
                $("#meme_annotation_box .acf-input").html("<p>You must set featured image and save as draft to specify meme details</p>");
            } else {
                //Get the meme-annotate version (497x350)
                var imgArray = imgSrc.split("-");
                imgArray.pop();
                var imgModify = imgArray.join("-") + "-497x350.jpg";

                //Create new image and prepare annotation for the message box
                $("#meme_annotation_box").append("<img id='meme-annotation' src='" + imgModify + "'/>");

                $("#meme-annotation").annotateImage({
                    editable: true,
                    useAjax: false,
                    defaultHeight: "350px",
                    defaultWidth: "497px",
                    notes: [{
                        "top": parseInt($("#meme_message_v_offset input").val() * 350 / 100), "left": parseInt($("#meme_message_h_offset input").val() * 497 / 100),
                        "width": parseInt($("#meme_message_width input").val() * 497 / 100), "height": parseInt($("#meme_message_height input").val() * 350 / 100),
                        "text": "Message", "id": "annotate-message", "editable": true
                    }]
                });
            }
        }
    });
})( jQuery );
```

Override annotation adjustments to store into CSS hidden ACF meta fields

Set thumbnail of featured image as source for annotation box

Annotate image w/ defaults from ACF meta

FEATURE SUGGESTION + MEME MAKER

https://developer.gravitypdf.com/documentation/configuration-options-examples/

GRAVITY PDF

Documentation Support News Contact

Search...

- Installation
- Configuration
  - **Configuration Options**
  - Configuring the Plugin
  - Display PDF in Browser
  - Video Series
  - PayPal Payment
  - Manual PDF Email
  - Front-End Download
  - PDF Emails
  - Basic Configuration
- Custom Templates
- Advanced
- Troubleshooting

Sign Up to Newsletter

Keep up to date with all the latest Gravity PDF news.

Configuration Options and Examples

All configuration should be added to your `/wp-content/uploads/PDF_EXTENDED_TEMPLATES/configuration.php` file. Multisite installations will have an extra directory in the PDF templates folder which are named with each website's ID number – `/wp-content/uploads/PDF_EXTENDED_TEMPLATES/5/configuration.php` .

Gravity PDF 3.6.0 moved the `PDF_EXTENDED_TEMPLATES` folder from your active theme to your uploads directory.

BASIC USAGE

It is simple to generate PDFs and have them attached to Gravity Form notifications. The following will send the default PDF template to all form notifications.

```
$gf_pdf_config[] = array(
        'form_id' => 1,
        'notifications' => true,
);
```

FEATURE SUGGESTION + MEME MAKER

```php
<?php if(!class_exists("RGForms")){ return; }
$form = RGFormsModel::get_form_meta($form_id); ?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html><head>
    <link rel='stylesheet' href='<?php echo PDF_PLUGIN_URL .'initialisation/template.css'; ?>' type='text/css' />
    <title>SeussUp Your Features</title>
    <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
</head><body>
<?php foreach($lead_ids as $lead_id) {
    $lead = RGFormsModel::get_lead($lead_id);
    $form_data = GFPDFEntryDetail::lead_detail_grid_array($form, $lead);
    PDF_Common::view_data($form_data);

    $cardID = $form_data['field'][11];

    $msg_width = (intval(get_post_meta($cardID, "moment_message_width", true)) / 100 * 1000);
    $msg_h_offset = (intval(get_post_meta($cardID, "moment_message_h_offset", true)) / 100 * 1000);
    $msg_height = intval(get_post_meta($cardID, "moment_message_height", true)) / 100 * 705;
    $msg_v_offset = (intval(get_post_meta($cardID, "moment_message_v_offset", true)) / 100 * 705);

    echo get_the_post_thumbnail($cardID, 'full');

    $messageStyle = "position: fixed; top: " . $msg_v_offset . "px; left: " . $msg_h_offset . "px; width: " . $msg_width . "px; height: " . $msg_height . "px; ";
    echo '<div id="message" style="' . $messageStyle . '">' . $msg_text . '</div>';
    echo '<div id="salutation" style="' . $salutationStyle . '">' . $salutation_text . '</div>';
}
?>
</body></html>
```

Get card selection from form entry and retrieve related ACF meta

Write card position meta into inline CSS which Gravity PDF turns into....PDF

FEATURE SUGGESTION + MEME MAKER

Our magical meme-maker doesn't quite invigorate the Internets

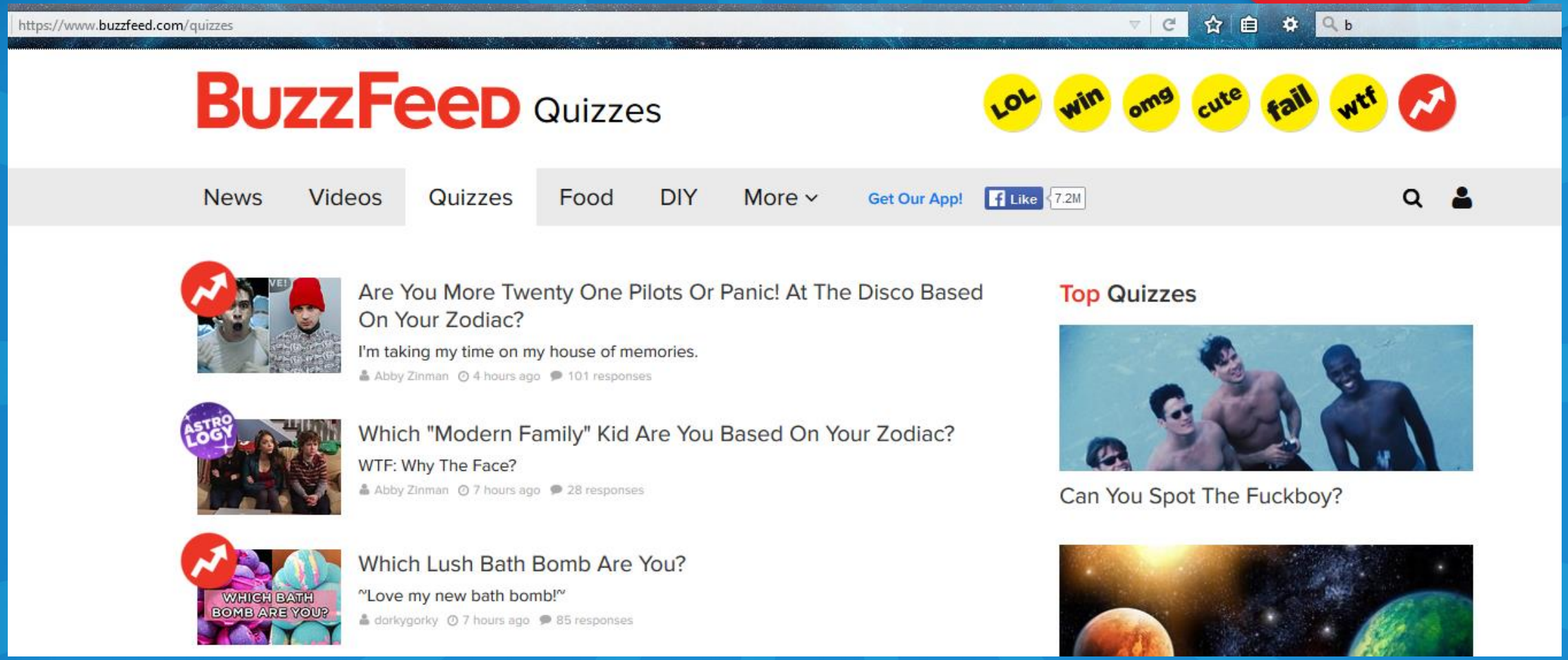
We got 29 features and that's just fine

Next time we'll add more cute felines

FEATURES IN LINES OF CODE

OR LESS

What feature to build first?



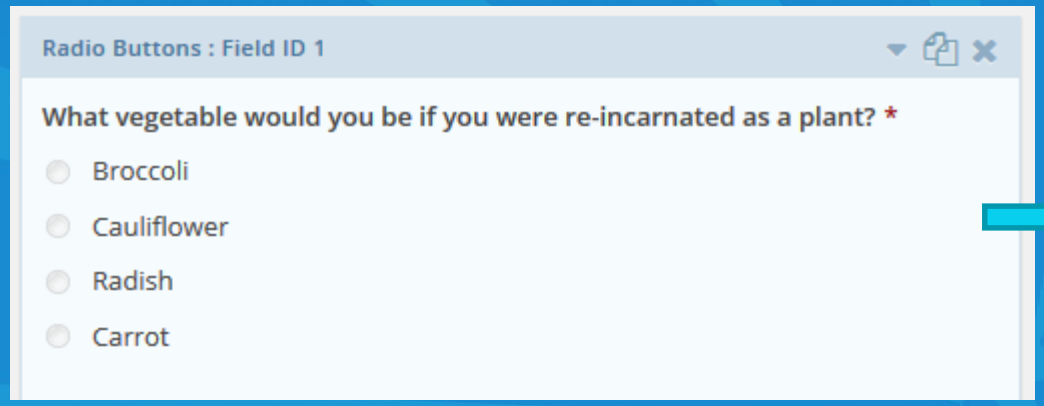
Super Scientific Survey

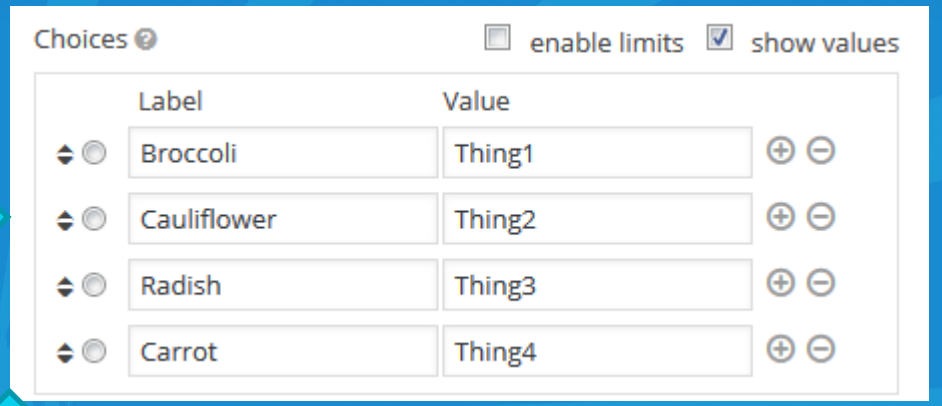
Super Scientific Survey

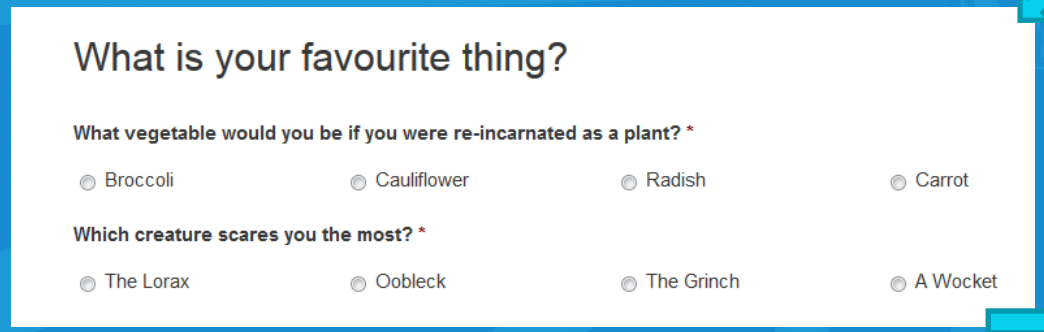
What's the goal, Joel?

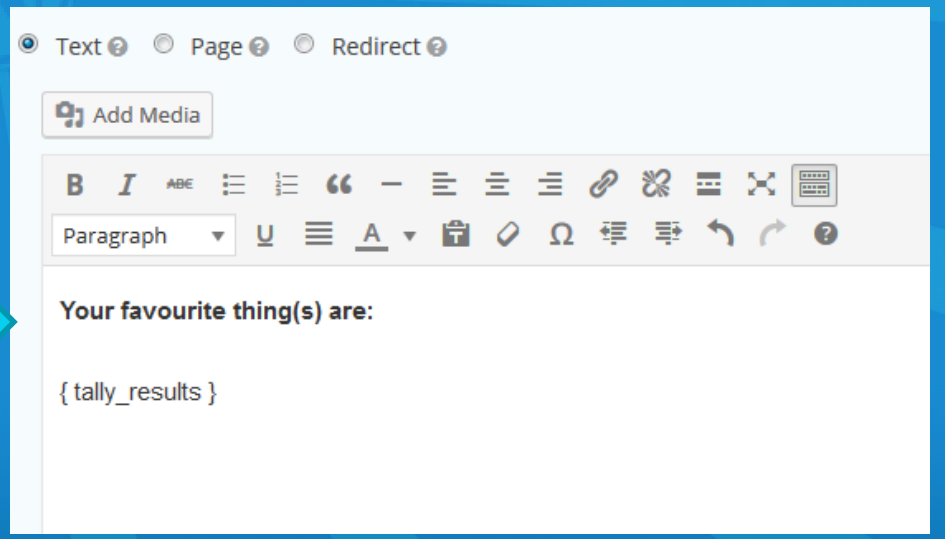
- Gravity Forms
  - Create form with common answers for series of questions
  - Show people their results on screen via custom merge tag { tally_results } in confirmation
- Net New Code:
  - Add_filter – gform_replace_merge_tags - Calculate the field values

Super Scientific Survey

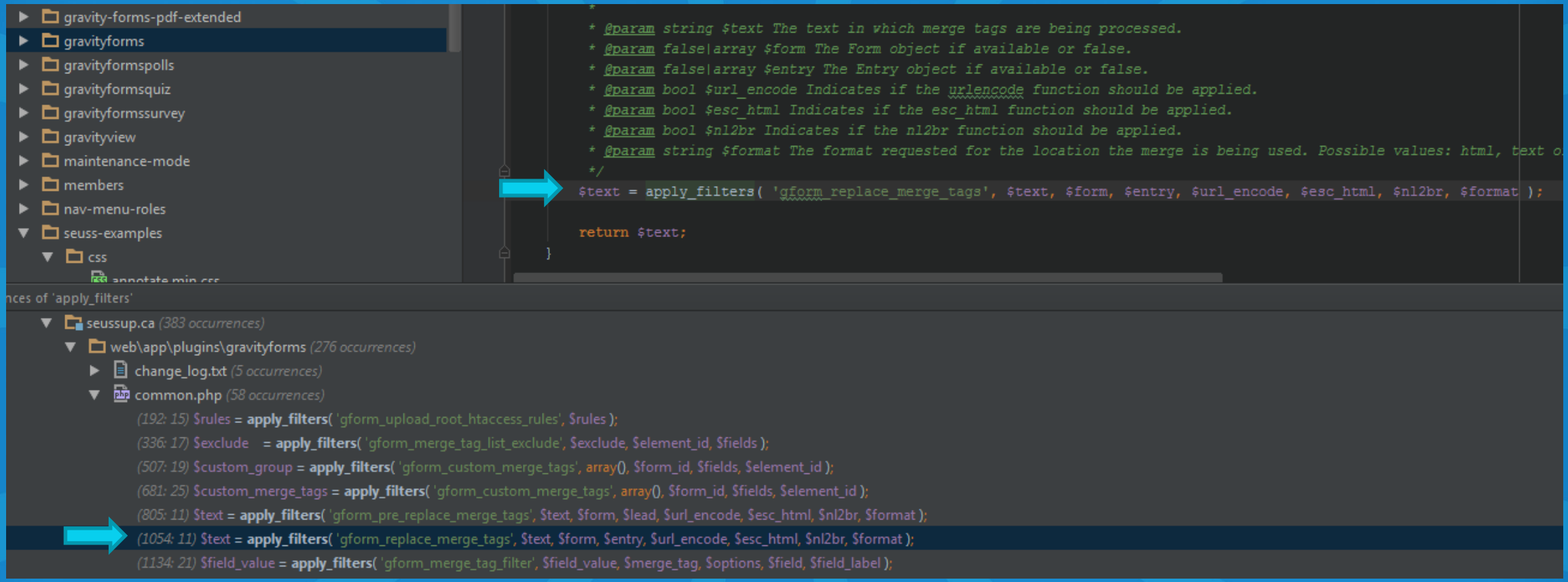








Super Scientific Survey



OR https://www.gravityhelp.com/documentation/article/gform_replace_merge_tags/

Super Scientific Survey

```php
<?php
add_filter( 'gform_replace_merge_tags', array(&$this, "replace_tally_results"), 10, 7 );
function replace_tally_results( $text, $form, $entry, $url_encode, $esc_html, $nl2br, $format ) {

    $custom_merge_tag = '{tally_results}';

    if ( strpos( $text, $custom_merge_tag ) === false ) {
        return $text;
    }

    $score = array();
    foreach($form['fields'] as $field) {
        if( $field['type'] == "radio") {
            if( isset( $score[ $entry[ $field['id'] ] ] ) )  {
                $score[ $entry[ $field['id'] ] ] = $score[ $entry[ $field['id'] ] ] + 1;
            } else {
                $score[ $entry[ $field['id'] ] ] = 1;
            }
        }
    }
    $result = "";
    foreach($score as $key => $value) {
        $result .= $value . "    " . $key ."<br/>";
    }
    $text = str_replace( $custom_merge_tag, $result, $text );
    return $text;
}
```

http://idealienstudios.com/gravity-in-action-tally-common-questions-via-merge-tag/

Super Scientific Survey

Your favourite thing(s) are:

- Thing 2 – 22
- Thing 1 – 14
- Thing 3 – 7
- Thing 4 – 2

We had 29 feature suggestions today
But the fact-finding feature form finalized a favourite set of 22
Which means anything about Thing 2 is the thing to do
So we will continue to build...

22

FEATURES IN LINES OF CODE

OR LESS

Perfecting the path to production

Perfecting the path to production

What's the target, Margaret?

- Build a workflow to track features as they proceed on the path to production
  - Gravity Forms
  - Gravity Flow (Ottawa WordCamp Small Biz Sponsor too!)
- Members
  - Ability to assign multiple roles per user
- Net New Code:
  - add_filter – gravityflow_user_field – To assign a developer / tester to specific features in a sprint

Perfecting the path to production

Feature Flow

Requirement *

Business Value *

Title *

Related Meme *

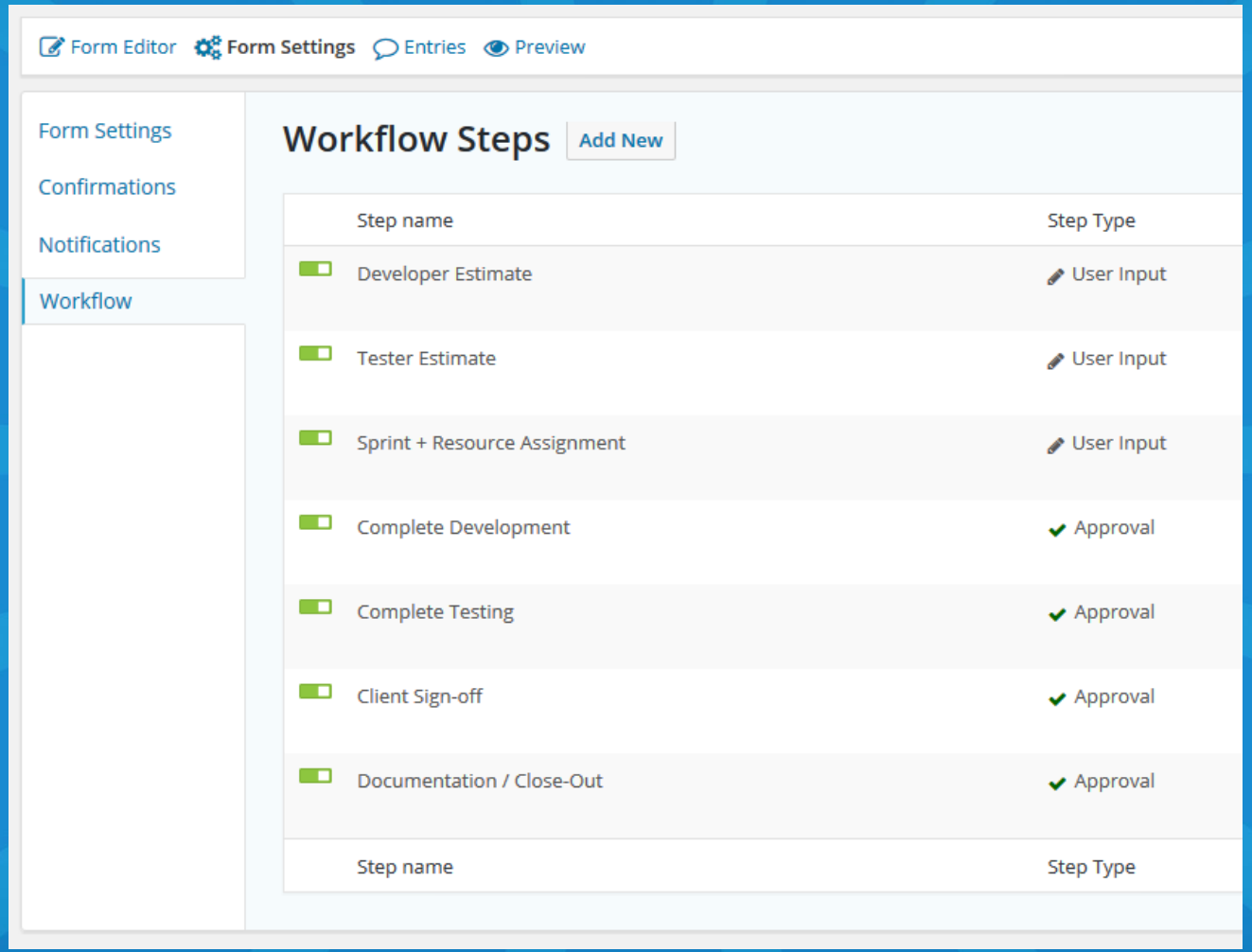
-- select a Meme --

Please enter a value between **1** and **5**.

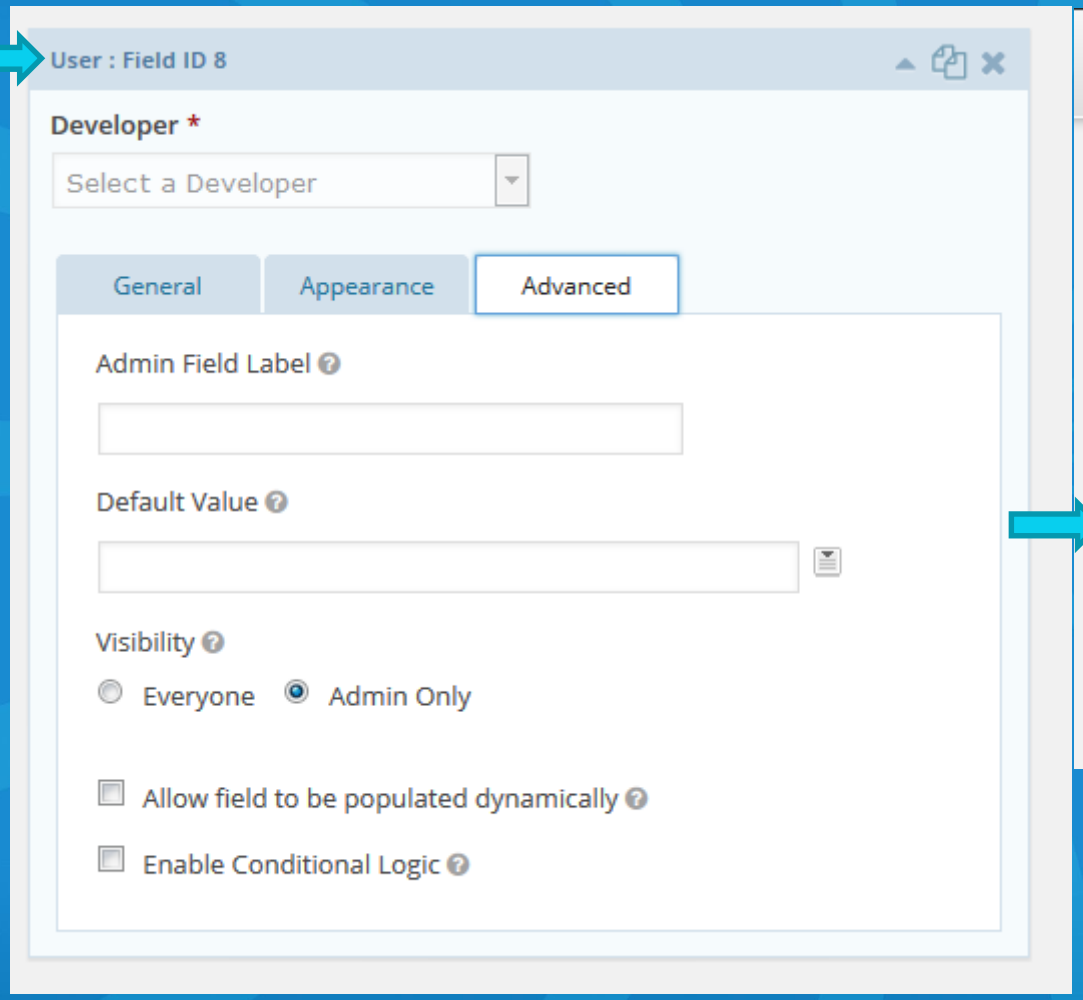
Discussion

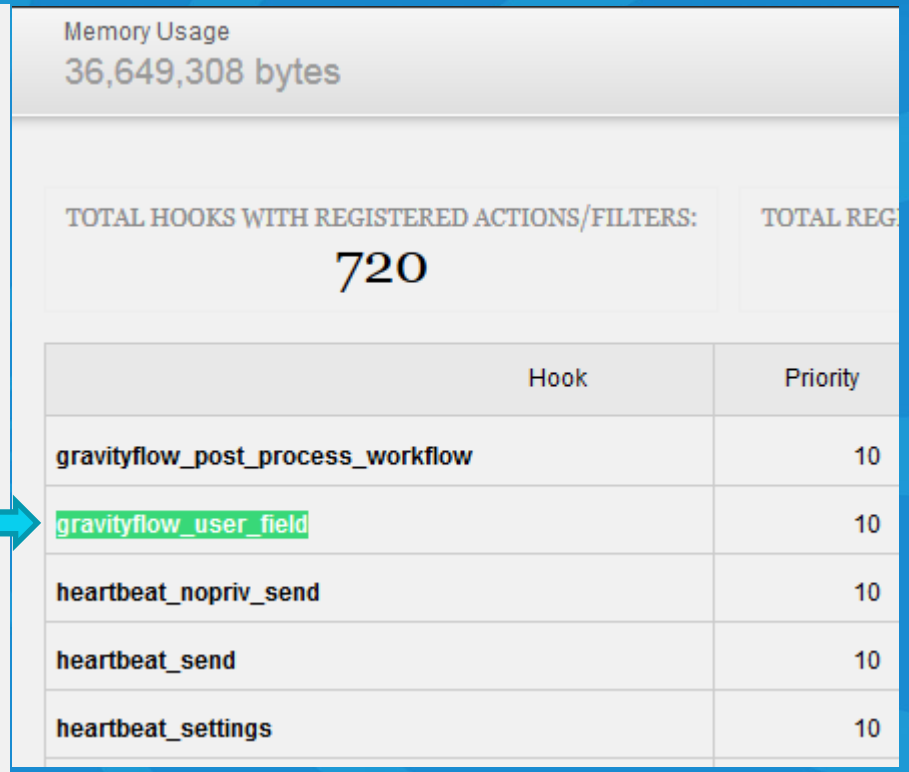
Submit

Perfecting the path to production



Perfecting the path to production

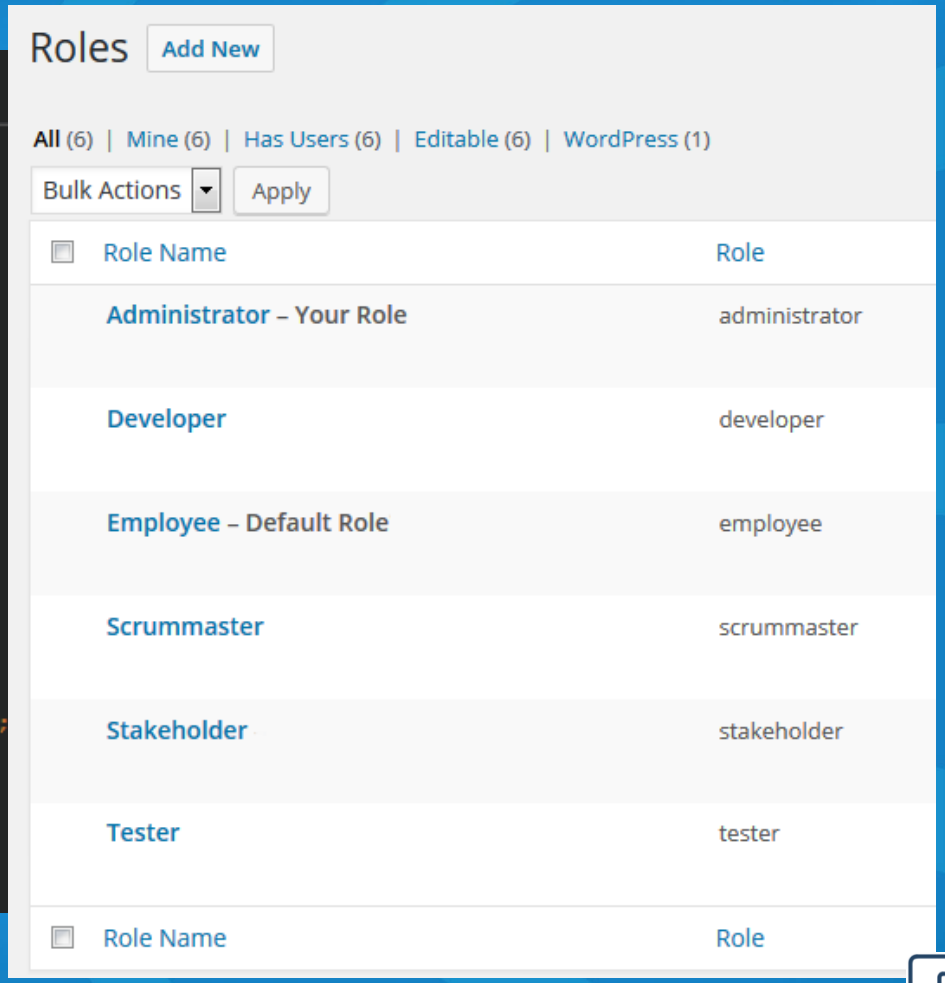




Perfecting the path to production

```
$account_choices = apply_filters( 'gravityflow_user_field', $account_choices, $form_id, $this );
```

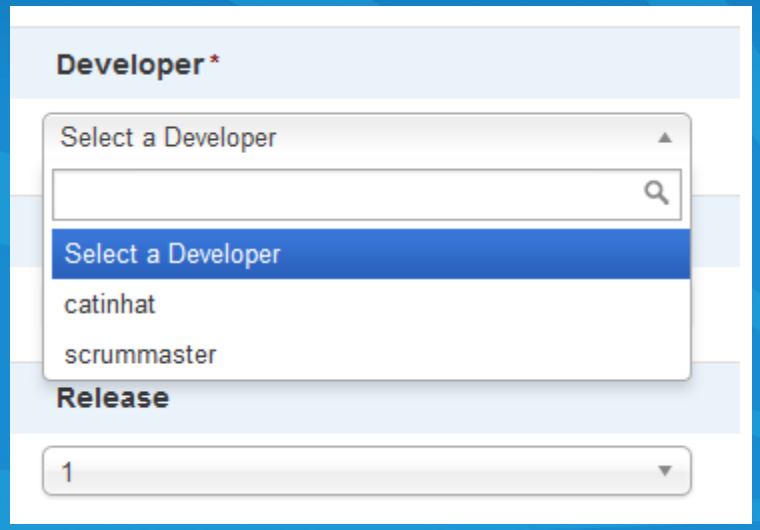
```php
<?php
add_filter( 'gravityflow_user_field', 'gf_populate_user_fields', 10, 3 );
function gf_populate_user_fields( $choices, $form_id, $field ) {
    if ( $form_id !== 4 )
        return $choices;

    switch( $field->id ):
        case '8':
            $users = get_users( array( 'role' => 'developer' ) );
            break;
        case '11':
            $users = get_users( array( 'role' => 'tester' ) );
            break;
    endswitch;
    if( $users ):
        $role_choices = array();
        foreach($users as $user):
            $role_choices[] = array( 'value' => $user->ID, 'text' => $user->user_nicename);
        endforeach;
    endif;
    return $role_choices;
}

```



OR http://docs.gravityflow.io/article/82-gravityflowuserfield

CODE

Perfecting the path to production



Our development is done,

The testers have tested,

But what's this now? Our client's off sick and feeling congested?
How will our features be part of release 1?

We'll need a solution if we're going to succeed,
So lets solve the approval problem of biggest need,

Then we can continue with

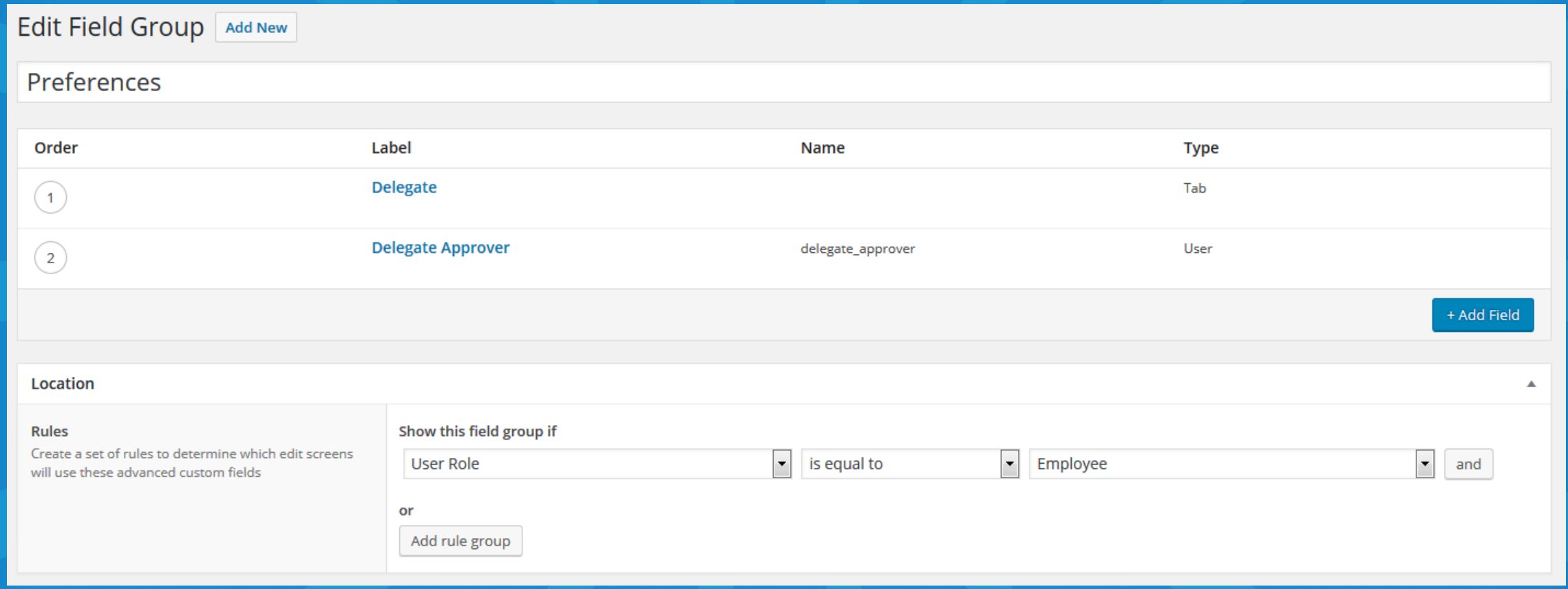
8 FEATURES IN LINES OF CODE OR LESS

DELEGATED ACCESS

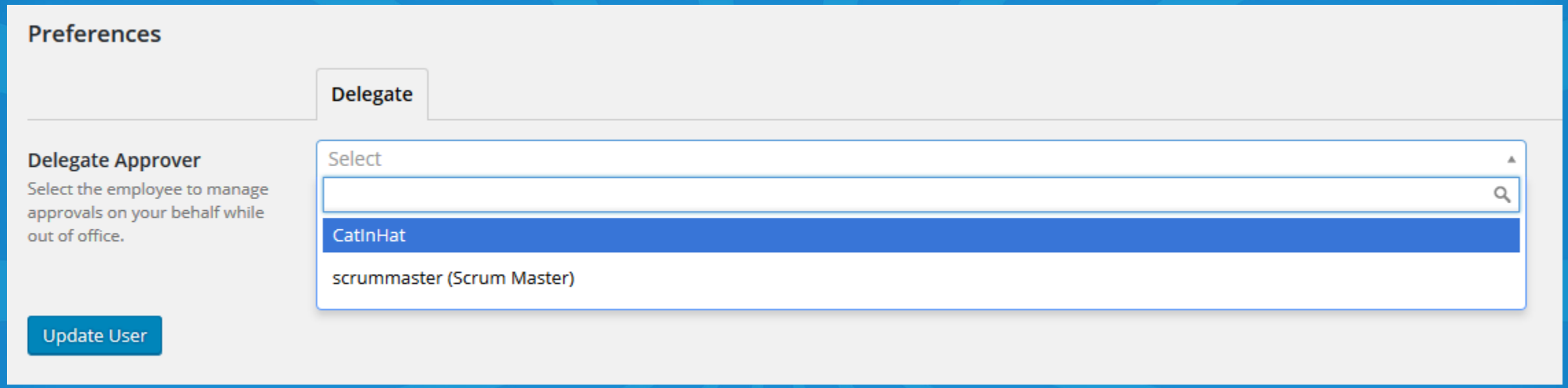
What's the way, Rey?

- **Plugins**
  - User Switching - https://wordpress.org/plugins/user-switching
  - Advanced Custom Fields – https://wordpress.org/plugins/advanced-custom-fields
    - User Meta
    - *Optional:* Front-End Form via Page Template in Theme
- **Net New Code:**
  - add_filter - acf/fields/user/query/name=delegate_approver
    So user cannot select themselves as delegate
  - add_filter – user_has_cap (with priority) to override User Switching limit to Admins
  - Add_filter – wp_nav_menu_items to add delegate options to primary menu
  - *Optional:* Page Template with acf_form to set delegate preference via front-end

Delegated Access



Delegated Access



Delegated Access

```php
add_filter( 'acf/fields/user/query/name=delegate_approver', 'prevent_self_selection', 10, 3 )
function prevent_self_selection( $args, $field, $ID ){
    $currentUser = explode("_", $ID);
    $args['exclude'] = array($currentUser[1]);
    return $args;
}
```

```php
add_filter( 'user_has_cap', 'userswitch_employee_filter', 5, 3 );
function userswitch_employee_filter( $user_caps, $required_caps, $args ) {
    if ( 'switch_to_user' == $args[0] )
        $user_caps['switch_to_user'] = ( user_can( $args[1], 'employee' ) );
    else if ( 'switch_off' == $args[0] )
        $user_caps['switch_off'] = ( user_can( $args[1], 'employee' ) and user_switching::get_old_user() );
    return $user_caps;
}
```

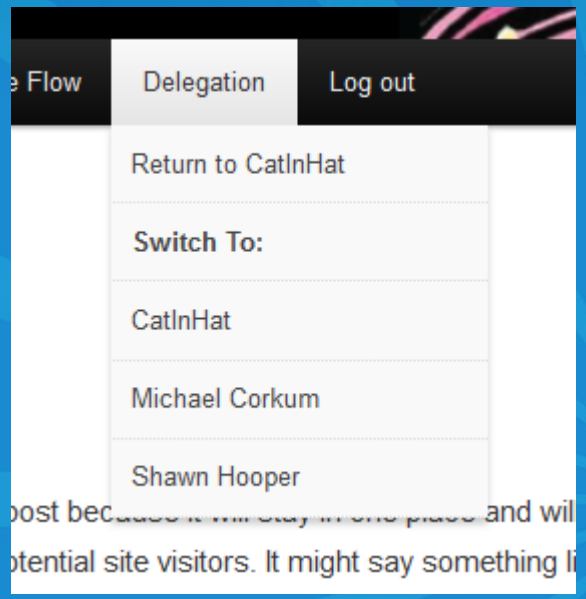
```php
add_filter('wp_nav_menu_items','frontend_delegate_approvers', 10, 2);
function frontend_delegate_approvers($nav, $args) {
    global $current_user;

    //Skip when delegation is unpossible, add login/out link to home page
    if( !is_user_logged_in() || $args->theme_location !== 'primary' || !class_exists( 'user_switching' ) )
        return $nav . '<li class="menu-item">' . wp_loginout($_SERVER['REQUEST_URI'], false ) . '</li>';

    $da_menu = "<li class='menu-item menu-item-has-children'><a href='/preferences/'>Delegation</a><ul class='sub-menu'>";

    //Display switchback link when user has already switched
    if( current_user_switched() ):
        $oldUser = current_user_switched();
        $da_menu .= '<li class="menu-item"><a href="' . user_switching::switch_back_url( user_switching::get_old_user() ) . '">Return to ' . $oldUser->display_name  . "</a></li>";
    endif;

    //Display remove delegation link when user has set a preference
    $delegateApprover = get_user_meta($current_user->ID, "delegate_approver", true);
    if( $delegateApprover ):
        if( function_exists( 'current_user_switched') && !current_user_switched() ):
            $da_menu .= '<li><a href="/preferences/">Remove Delegated Approver</a></li>';
        endif;
    endif;

    //Display list of employees who have set current user as their delegate.
    $delegates = get_users( array(
        'role' => 'employee',
        'meta_key' => 'delegate_approver',
        'meta_value' => $current_user->ID
    ) );

    if( $delegates ):
        $da_menu .= '<li><a href="#"><strong>Switch To:</strong></a></li>';
        foreach ( $delegates as $delegate ) :
            $da_menu .= '<li><a href="' . user_switching::maybe_switch_url( $delegate ) . '">' . esc_html( $delegate->display_name ) . '</a></li>';
        endforeach;
    endif;

    $da_menu .= "</ul></li>";

    //Return menu with login/out link
    return $nav . $da_menu . '<li class="menu-item">' . wp_loginout($_SERVER['REQUEST_URI'], false ) . '</li>';
}
```

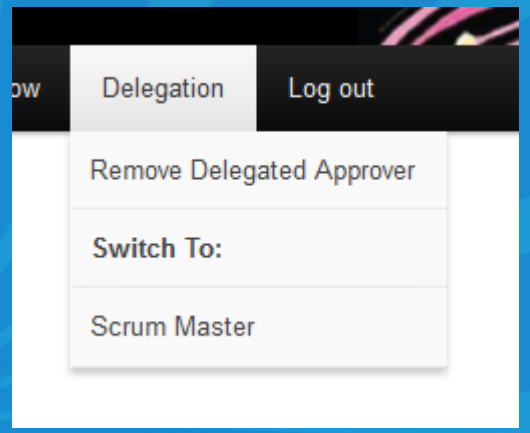
1

2

3

Delegated Access





So our code is looking fine,

but we're running short on time

So let's build out one last fantastic feature

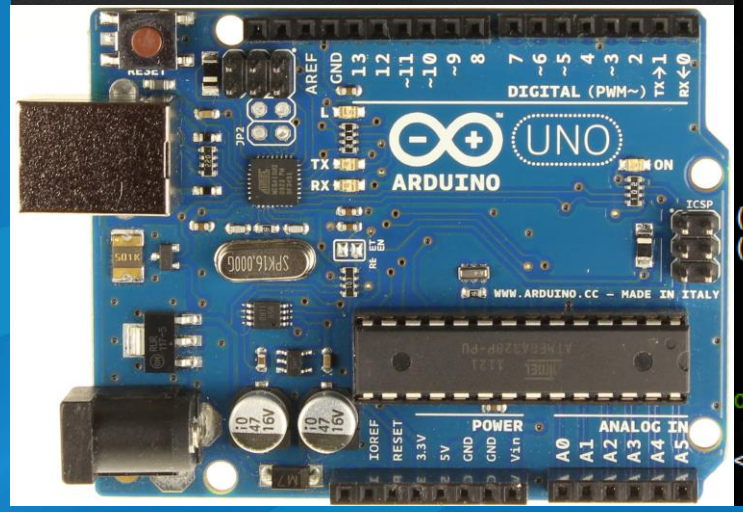
and use WordPress to answer the riddle of a most interesting creature?

The question I beg – which came first: Chicken or egg?

Which came first? Chicken or Egg?

- Actions / Filters
- Customizer
- Custom Post Types
- Custom Fields
- Menus
- Post Status
- Permalinks
- Rest API
- Revisions
- Roles
- Shortcodes
- Taxonomies
- Templates
- Widgets
- Users

Which came first? Chicken or Egg?




```
< TASK [monitor : Get Temperature from incubator] >
 ------------------------------------------------
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   |      |
   /\     /\

ok: [192.168.1.17]

< TASK [monitor : Get Humidity from incubator] >
 ------------------------------------------------
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   |      |
   |      |
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ok: [192.168.1.17]

< TASK [monitor : Create WordPress Sensor Reading
 ------------------------------------------------
```
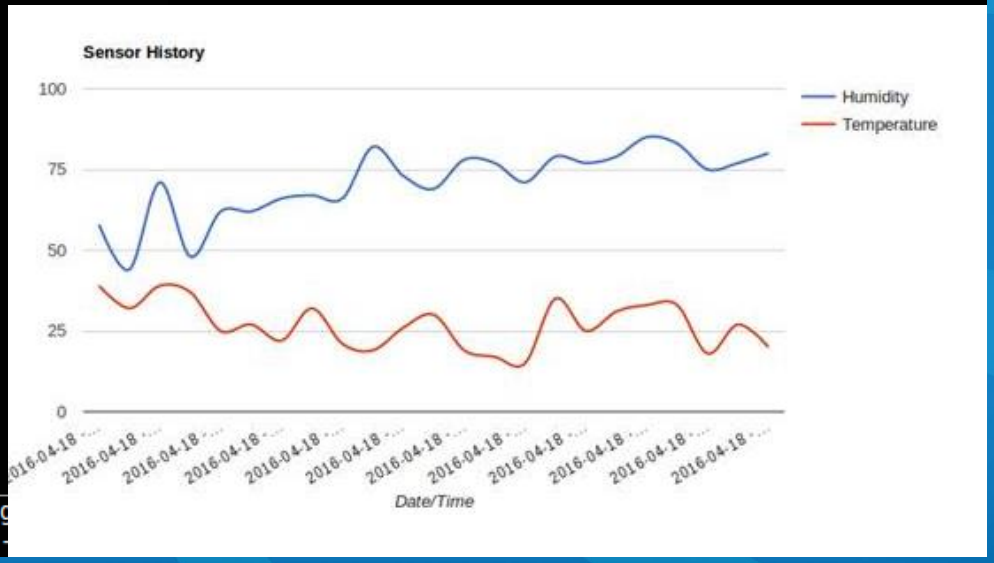

Temp / Heat Sensor
+ Arduino Uno
+ WP Rest API + Data Tables Plugin
+ Ansible
= WordPress Powered
Incubator Monitor in 8 lines of code



Enjoy Lunch! Questions?

Download these slides @

http://idealienstudios.com/wordcamp-ottawa-30-in-30/

How many unique actions are in WordPress core?

799 do_action

How many unique filters are in WordPress core?

1525 apply_filters

How many times are those actions used in WordPress core?

502 add_action

How many times are those filters used in WordPress core?

333 add_filter