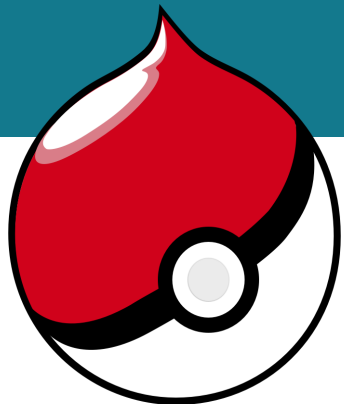




DRUPALCAMP GHENT
2016

9 / 10 SEPTEMBER

GROW SOME IDEAS



Gotta catch 'em all, with D8 and AngularJS



We are

- Drupal developers
- Employed by [Entity\[One\]](#)
- Pokémon enthusiasts
- Two guys that bring their crazy ideas to life in Drupal environments
- Follow our adventures on twitter!
 - @fonsvandamme
 - @robinwhatup

Pokémon locator



Pokémon locator

- Drupal 8 (♥_♥)
- Shows
 - Pokéstops
 - Active lures + Top 3 in neighbourhood
 - Gyms

Pokémon locator

- One of the first maps around
- First version online after 3 days
- Incremental improvement based on user feedback
- Server couldn't handle the traffic

Pokémon locator



Pokémon locator

Gepubliceerd door Fons Vandamme [?] · 19 juli · 🌐

We zijn 24u online, de server hebben we laten evolveren dus alles zou vlotter moeten werken. Bedankt om massaal markers toe te voegen. Gotta mark em all!



Pokémon locator

- After a while:
 - Players started using solutions that violate the TOS
 - 10k unique/day -> 300-500 unique/day
 - Solutions that violate the TOS come and go

But..

We had fun and learned a lot!



Today's topics

- Acquia Dev Desktop
- Custom content entity
- Guzzle
- AngularJS & Templating
- Leaflet.js & Google maps
- Resources
- Theming
- Security

Acquia Dev Desktop



Acquia Dev Desktop

- Local development
- Comparable to wamp, mamp or xampp stack
- Comes with:
 - Apache
 - PHP (5.x, 7.x versions)
 - MySQL
 - Xmail server (windows only)
 - Drush
- Setup of new and existing D7 and D8 websites
- Possibility to integrate with Acquia Cloud

More info: <https://fonsvandamme.be/blog/local-drupal-development-acquia-dev-desktop>

Custom entity

Custom entity - Drupal Console

- CLI for Drupal based on Symfony console
- Create modules, entities, forms, plugins...

```
drupal generate:entity:content
```

Drupal Console

```
D:\_GIT\pokemonlocator>php drupal.phar generate:entity:content
Enter the module name [addtoany]:
> pokemon

Enter the class of your new content entity [DefaultEntity]:
> Marker

Enter the machine name of your new content entity [marker]:
>

Enter the label of your new content entity [Marker]:
>

Enter the base-path for the content entity routes [/admin/structure]:
> admin/structure/pokemon

Do you want this (content) entity to have bundles (yes/no) [no]:
> no

Is your entity translatable (yes/no) [yes]:
> no

Generated or updated files
Site path: D:\_GIT\pokemonlocator
1 - modules/custom/pokemon/pokemon.permissions.yml
2 - modules/custom/pokemon/pokemon.links.menu.yml
3 - modules/custom/pokemon/pokemon.links.task.yml
4 - modules/custom/pokemon/pokemon.links.action.yml
5 - modules/custom/pokemon/src/MarkerAccessControlHandler.php
6 - modules/custom/pokemon/src/Entity/MarkerInterface.php
7 - modules/custom/pokemon/src/Entity/Marker.php
8 - modules/custom/pokemon/src/MarkerHtmlRouteProvider.php
9 - modules/custom/pokemon/src/Entity/MarkerViewsData.php
10 - modules/custom/pokemon/src/MarkerListBuilder.php
11 - modules/custom/pokemon/src/Form/MarkerSettingsForm.php
12 - modules/custom/pokemon/src/Form/MarkerForm.php
13 - modules/custom/pokemon/src/Form/MarkerDeleteForm.php
14 - modules/custom/pokemon/marker.page.inc
15 - modules/custom/pokemon/templates/marker.html.twig
```

Custom entity

Entity class uses annotation

```
/**
 * @ContentEntityType(
 *   id = "pokemon_marker",
 *   label = @Translation("Pokemon marker"),
 *   ...
 *   entity_keys = {
 *     "id" = "id",
 *     "label" = "name",
 *     "uuid" = "uuid",
 *     "uid" = "user_id",
 *     "langcode" = "langcode",
 *     "status" = "status",
 *   },
 *   links = {
 *     "canonical" = "/admin/structure/pokemon/marker/{pokemon_marker}",
 *     "add-form" = "/admin/structure/pokemon/marker/add",
 *     "edit-form" = "/admin/structure/pokemon/marker/{pokemon_marker}/edit",
 *     "delete-form" = "/admin/structure/pokemon/marker/{pokemon_marker}/delete",
 *     "collection" = "/admin/structure/pokemon/marker",
 *   },
 * )
 */
```

Custom entity

Define fields

```
$fields['type'] = BaseFieldDefinition::create('list_string')
->setLabel(t('Type'))
->setTranslatable(FALSE)
->setRequired(TRUE)
->setDefaultValue('gym')
->setSettings(array(
  'allowed_values' => array(
    'gym' => 'Gym',
    'pokestop' => 'Pokestop',
    'lure' => 'Lure',
  ),
),
);
->setRevisionable(FALSE)
->setDisplayOptions('form', array(
  'type' => 'list_string',
  'weight' => 5,
  'settings' => array(
    'display_label' => TRUE,
  ),
));
```

Edits after module install: drush entity-updates

Custom entity - Marker types

- Marker type factory defines all marker types

```
public static function getAllMarkerTypes() {  
    return array(  
        'gym' => new MarkerGym(),  
        'pokestop' => new MarkerPokestop(),  
        'lure' => new MarkerLure(),  
        'gym-new' => new MarkerGymNew(),  
        'pokestop-new' => new MarkerPokestopNew(),  
        'lure-new' => new MarkerLureNew()  
    );  
}
```

- Create new class extending MarkerBase to add new marker
- Better solution: Built in Plugin system
- User friendly: also custom entity

Guzzle

Guzzle

- PHP http client to send requests (GET, POST, PUT,...)
- Comes with Drupal 8 core
- Replaces `drupal_http_request()`

Guzzle

Inject http client into class by defining this in pokemon.services.yml

```
pokemon.manager.import
  class: Drupal\pokemon\Manager\MarkerImportManager
  arguments: ['@http_client']
```

MarkerImportManager constructor

```
public function __construct(Client $client) {
    $this->httpClient = $client;
}
```

Guzzle

Execute request

```
$response = $this->httpClient->get('uri', [  
    'headers'=> [  
        'Content-Type'=> 'application/json',  
        'additional-header'=> 'value'  
    ],  
    'auth'=> ['username', 'password'],  
]);
```

Process response

```
$status_code = $reponse->getStatusCode();  
  
if ($status_code == 200) {  
    $response_contents = $reponse->getBody()->getContents();  
    // Do something with response.  
    ...  
}
```

AngularJS & Templating



AngularJS

- Decouple DOM manipulation from application logic
- Decouple the client side of an application from the server side

Templating

- Drupal 8 core templating (twig)
- Drupal 8 core caching
- Custom (nested) render arrays for complete control

=> Semi-decoupled application

Templating - Structure

- Page
 - Sidebar
 - Branding
 - Content
 - Map
 - Social media

Libraries

- Multiple libraries dependent on each other
- Easy manageable

```
pokemon.leaflet:  
  version: 1.x  
  css:  
    theme:  
      ... leaflet dependent css  
  js:  
    ... leaflet library and plugins  
pokemon.angular:  
  ... angular libray files and custom directives  
pokemon.angular.app:  
  ...  
  dependencies:  
    - pokemon/pokemon.angular  
pokemon.angular.leaflet:  
  ...  
  dependencies:  
    - pokemon/pokemon.leaflet  
    - core/underscore  
    - core/drupal.debounce  
    - pokemon/pokemon.angular.app
```

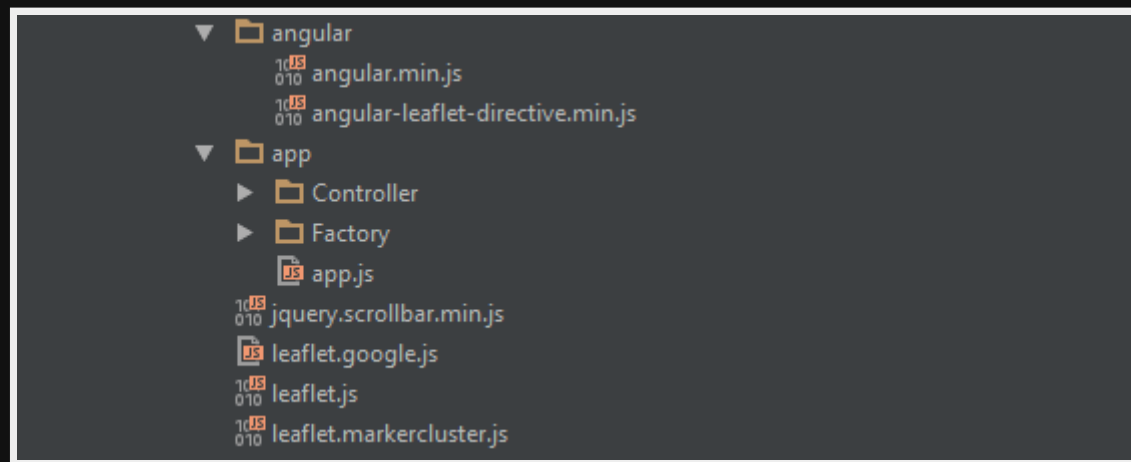
Render array

Readable and compact because of

- Nested render arrays
- Dependable libraries

```
return array(  
  '#theme' => 'pokemon_page',  
  '#content' => $content,  
  '#sidebar' => $sidebar,  
  '#attached' => array(  
    'library' => array(  
      'pokemon/pokemon.angular.leaflet',  
    ),  
  ),  
);
```

AngularJS - structure



AngularJS - Binding

HTML:

```
<button ng-show="!mapFactory.hasToZoomIn">{{ buttonText}}</button>
```

Javascript:

```
if(checkStuff()){  
  $scope.mapFactory.hasToZoomIn = false;  
  $scope.buttonText = "You can click it now";  
}
```

AngularJS - Binding

HTML:

```
<a href="#" ng-click="addPokestop()">Pokéstop</a>
```

Javascript:

```
// Adds pokestop marker to map.  
$scope.addPokestop = function () {  
  // Do fancy things.  
};
```

AngularJS - Binding

HTML:

```
<a ng-click="center.lat = 50.123;  
center.lng = 3.987">{{ 'Reset location' | t }}</a>
```

AngularJS - Leaflet.js Binding

HTML:

```
<leaflet lf-center="center" markers="markers" layers="layers" defaults="defaults"></1
```

Javascript:

```
angular.extend($scope, {  
  defaults: {  
    maxZoom: 18, minZoom: 8  
  },  
  center: {  
    lat: 51.038, lng: 3.721  
  },  
  layers: {  
    ...  
  },  
  markers {  
    ...  
  }  
});
```


AngularJS and Twig

- `{{ my_variable }}` = reserved char sequence in Twig
- `{{ my_variable }}` also used in angularJS

Conflict, Solutions?

- In angularJS, edit start and end interpolation tags, eg "`{[{"`"
- Use `{{ '{{my_variable}}' }}` notation in twig

Leaflet.js and Google maps



Leaflet.js and Google maps

- An open-source JavaScript library for mobile-friendly interactive map
- A lot of community built plugins
- Well-documented API
- Map providers (Google, OSM, ...)

Leaflet.js and Google maps

Used an angular directive to integrate Leaflet.js and AngularJS

```
// Init leaflet map.
angular.extend($scope, {
  defaults: {
    maxZoom: 18,
    minZoom: 8
  },
  center: {
    lat: 51.038,
    lng: 3.721,
    zoom: 17,
    autoDiscover: true
  },
  events: {
    marker: {
      enable: ['dragend'],
      logic: 'emit'
    },
    map: {
      enable: ['zoomend', 'move'],
      logic: 'emit'
    }
  },
  ...
});
```

Leaflet.js and Google maps

- Google API key
- Google Maps library
- Google Maps Leaflet plugin

```
// Init leaflet map.  
angular.extend($scope, {  
  ...  
  layers: {  
    baselayers: {  
      googleRoadmap: {  
        name: 'Google Map',  
        layerType: 'ROADMAP',  
        type: 'google'  
      }  
    },  
    ...  
  }  
});
```

Leaflet.js and Markercluster

- Contributed plugin
- Useful when there are a lot of markers on a small area
- Configurable and integrated in angular directive

```
// Init leaflet map.
angular.extend($scope, {
  layers: {
    ...
    overlays: {
      ourAwesomeMarkers: {
        name: "Markers",
        type: "markercluster",
        visible: true,
        layerOptions: {
          disableClusteringAtZoom: 18
        }
      }
    }
  }
});
```

Leaflet.js and Markers

- Load all the things on page load! (What were we thinking?)
- Load markers in viewport

```
// On zoom end, load markers
$scope.$on('leafletDirectiveMap.pokemon-map.zoomend', _.debounce(function () {
    $scope.loadMarkers();
}, 500));

// On move load markers
$scope.$on('leafletDirectiveMap.pokemon-map.move', _.debounce(function () {
    $scope.loadMarkers();
}, 500));
```

Leaflet.js and Markers

```
// Load markers by map bounds.
$scope.loadMarkers = function () {
  leafletData.getMap('pokemon-map').then(function (map) {
    if (map.getZoom() >= 13) {
      // Only load new markers if zoom level has not changed (this should
      // Or when map is zoomed out (previous zoom should be greater than
      // Or when map is zoomed in when user gets message "you have to zoom
      if (previous_zoom >= map.getZoom() || $scope.mapFactory.hasToZoomIn
      $scope.mapFactory.hasToZoomIn = false;
      var bounds = map.getBounds();
      // Let factory load markers.
      MarkerFactory.loadMarkers(bounds).then(function (response) {
        ...
        $scope.markers = response;
      }).catch(function (response) {
        ...
      });
    }
    previous_zoom = map.getZoom();
  } else {
    ...
  }
});
};
```


Leaflet.js and Markers

Even better: Use a TileLayer

- Maps are made up of many small, square images called tiles
- Tiles are typically 256×256 pixels and are placed side-by-side in order to create the illusion of a very large seamless image
- Each tile has a
 - z coordinate describing its zoom level
 - x and y coordinates describing its position within a square grid for that zoom level
 - z/x/y notation

Leaflet.js and Markers

Why tiles?

- Tiled maps cache efficiently
- Tiled maps load progressively

Let leaflet do all the heavy lifting

Source: <https://www.mapbox.com/help/how-web-maps-work/>

Leaflet.js and Markers

Markers and TileLayers?

- Leaflet GeoJSON Tile Layer plugin
- Converts GeoJSON to tile

```
// Init leaflet map.
angular.extend($scope, {
  layers: {
    ...
    overlays: {
      ourAwesomeMarkers: {
        name: 'Markers',
        type: 'geoJSON',
        url: '/api-url/{z}/{x}/{y}?_format=json',
        visible: true,
        layerOptions: {
          style: function (feature) {
            return {
              clickable: false,
              color: 'white',
            };
          }
        }
      }
    }
  }
});
```

Leaflet.js and Markers

Add/remove overlay

```
// Add/remove marker overlay on zoom.
$scope.$watch('myLocation.zoom', function (zoom) {
  if (zoom < 13 && overlays.hasOwnProperty('ourAwesomeMarkers')) {
    delete $scope.layers.overlays['ourAwesomeMarkers'];
    // Or add another overlay that is less detailed.
  }
  if (zoom >= 13 && !overlays.hasOwnProperty('ourAwesomeMarkers')) {
    $scope.layers.overlays['ourAwesomeMarkers'] = {...};
  }
});
```

Resources



Resources - The wrong way

1. Make a controller with JSON response... :(
2. Google "Drupal 8 custom resource" to get more info
3. Find out Wim Leers has strong arguments against this approach
Source: <https://www.chapterthree.com/blog/custom-restful-api-drupal-8>
 - Custom paths per method
 - No access control
 - No CSRF protection
 - Not using the API that the REST module in Drupal 8 provides
4. Start over again

Resources - The right way

Possible to create a resource with Drupal Console

```
D:\_GIT\pokemonlocator>php drupal.phar generate:plugin:rest:resource
Enter the module name [addtoany]:
> pokemon

Enter the plugin rest resource name [DefaultRestResource]:
> PokemonMarker

Enter the plugin rest resource id [pokemon_marker]:
>

Enter the plugin rest resource label [Pokemon marker]:
>

Enter the plugin rest resource url:
> api/marker

Please select what REST States implement in your resource (GET is selected by default):
[0] GET
[1] PUT
[2] POST
[3] DELETE
[4] PATCH
[5] HEAD
[6] OPTIONS
> 0

Do you confirm generation? (yes/no) [yes]:
> yes

Generated or updated files
Site path: D:\_GIT\pokemonlocator
1 - modules/custom/pokemon/src/Plugin/rest/resource/PokemonMarker.php
// cache:rebuild

Rebuilding cache(s), wait a moment please.

[OK] Done clearing cache(s).
```

Resources - The right way

Resource class uses annotation

```
/**
 * @RestResource(
 *   id = "pokemon_marker",
 *   label = @Translation("Pokemon marker"),
 *   uri_paths = {
 *     "canonical" = "/api/marker/{z}/{x}/{y}"
 *   }
 * )
 */
class PokemonMarker extends ResourceBase {
    ...
}
```


Resources - The right way

Implement `get()` function in resource class

```
/**
 * Responds to GET requests.
 */
public function get($z, $x, $y) {
    if ($something = $this->somethingWrong()) {
        // Return 403.
        throw new AccessDeniedHttpException($something);
    }

    // Fetch all markers within tile.
    $markers = $this->manager->getMarkers($z, $x, $y);

    return new ResourceResponse($markers);
}
```

Caching problems for anonymous users: used "KillSwitch" to disable cache.

Resources - Rest UI

REST resources

Here you can enable and disable available resources. Once a resource has been enabled, you can restrict its formats and authentication by clicking on its "Edit" link.

Ingeschakeld

| RESOURCE NAME | PAD | BESCHRIJVING |
|----------------|--------------------------------------|--|
| Pokemon marker | <code>/api/marker/{z}/{x}/{y}</code> | GET authentication: cookie formats: json |

Resources - Permissions

| TOEGANGSRECHTEN | ANONIEME GEBRUIKER | GEVERIFIEERDE GEBRUIKER | BEHEERDER |
|--|-------------------------------------|----------------------------|-------------------------------------|
| Pokemon | | | |
| View published Pokemon marker entities | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| RESTful Web Services | | | |
| Access GET on <i>Pokemon lures</i> resource | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Access GET on <i>Pokemon markers</i> resource | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Access POST on <i>Pokemon markers</i> resource | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Resources - Extend EntityResource

```
/**
 * @RestResource(
 *   id = "my_custom_entity_resource",
 *   label = @Translation("My custom entity resource"),
 *   entity_type = "my_custom_entity_id",
 *   serialization_class = "Drupal\my_module\Entity\MyCustomEntityResource",
 *   uri_paths = {
 *     "canonical" = "/api/my-custom-entity/{my_custom_entity_id}",
 *     "https://www.drupal.org/link-relations/create" = "/api/create/my_
 *   }
 * )
 */
class MyCustomEntityResource extends EntityResource {
  ...
}
```

Resources - Extend EntityResource

Override parent methods

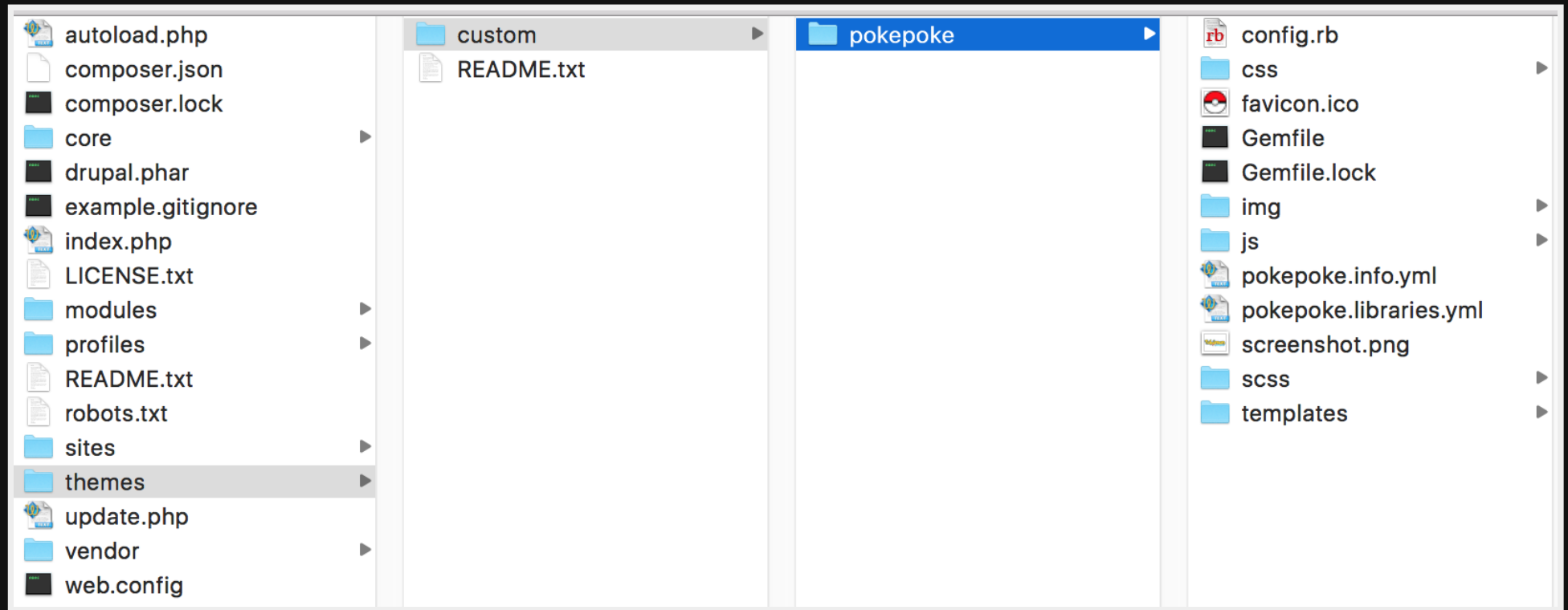
```
class MyCustomEntityResource extends EntityResource {  
    /**  
     * {@inheritDoc}  
     */  
    public function post(EntityInterface $entity= NULL) {  
        // Let parent create new entity.  
        $response = parent::post($entity);  
  
        // Do own fancy stuff.  
        ...  
  
        // Return newly created entity.  
        $url = $entity->urlInfo('canonical', ['absolute' => TRUE])->toString();  
        return new ResourceResponse($entity, 201, ['Location' => $url->getGen  
    }  
}
```

Theming



Theming - Custom theme

Based on Classy



Theming - Setup info file

pokepoke.info.yml

```
name: pokepoke
type: theme
description: 'Subtheme for Poke Poke!'
core: 8.x
package: custom
base theme: classy
libraries:
  - pokepoke/base
```


Theming - Setup libraries file

pokepoke.libraries.yml

```
base:
  version: 1.0
  css:
    theme:
      css/fontawesome/font-awesome.css: {}
      css/pokemon.css: {}
  js:
    js/bootstrap.js: {}
    js/jquery.touchSwipe.min.js: {}
    js/pokepoke.js: {}
  dependencies:
    - core/jquery
    - core/jquery.once
    - core/drupal
    - core/drupalSettings
```

Theming - Use sass

config.rb

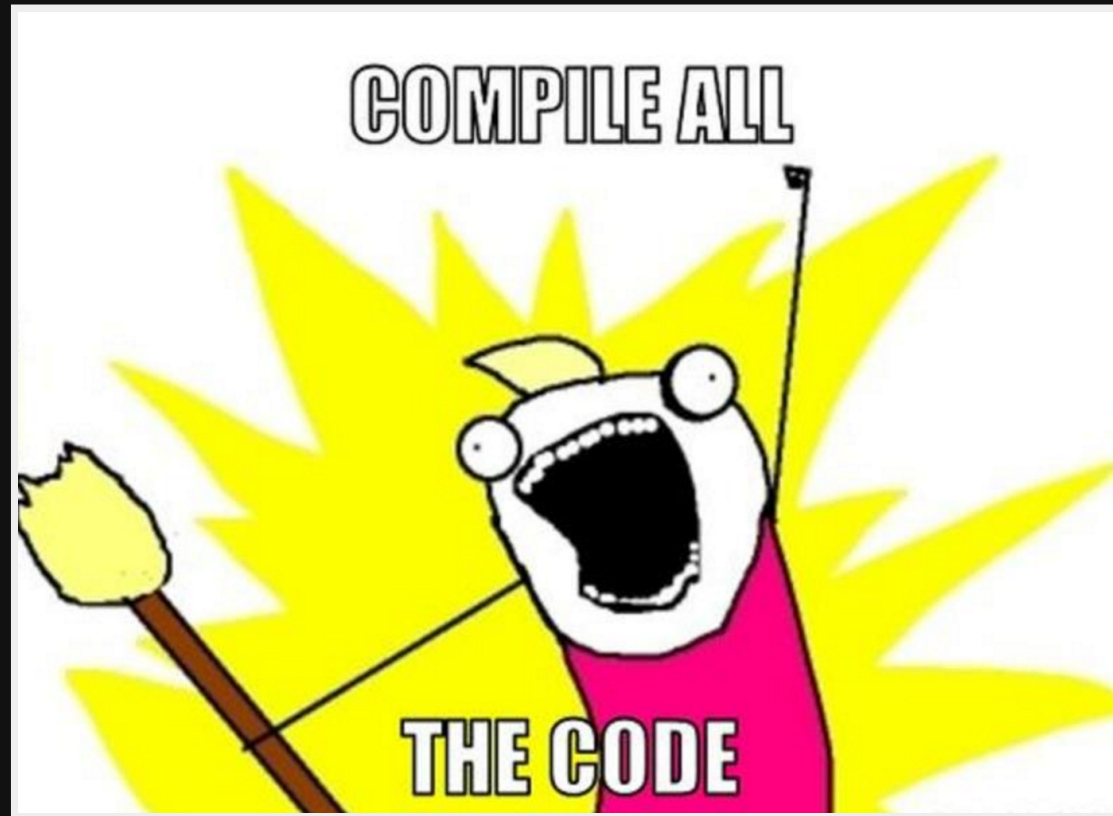
```
require 'susy'  
require 'breakpoint'  
require 'sass-globbing'  
  
http_path = "/"  
css_dir = "css"  
sass_dir = "scss"  
images_dir = "img"  
javascripts_dir = "js"  
output_style = :expanded  
relative_assets = true  
line_comments = true
```

Theming - Use sass

Gemlock file

```
source 'https://rubygems.org'  
  
gem 'compass'  
gem "breakpoint", "~>2.4.0"  
gem 'sass-rails', '~> 5.0.0'  
gem 'susy'  
gem 'compass-rails', '~> 2.0.0'  
gem 'font-awesome-sass'  
gem 'sass-globbing'
```

Theming - Use sass



There are probably better ways to set this all up with Grunt or Gulp?!

Theming - Result

Pokémon Locator

Type

- ✓ Actieve lures (0)
- ✓ Pokéstops (5312)
- ✓ Gyms (1528)

Lures in jouw buurt

Er zijn momenteel geen lures actief in jouw buurt.

Welkom pokémaster

Klaar om de beste pokémaster in jouw buurt te worden?

Op deze kaart kan je alle Pokéstops en Gyms in jouw buurt vinden.

<https://pokemonlocator.be>

CONTACT DISCLAIMER

The mobile friendly result after hours of headbanging and using the mighty Google







Security



Security

CPanel

SECURITY

-  SSH Access
-  IP Blocker
-  SSL/TLS
-  Hotlink Protection
-  Leech Protection
-  Let's Encrypt for cPanel

Security

Issue a new certificate

Choose from one of your domains below. A new key and certificate will be added to the SSL/TLS manager.

Show entries

Search:

| Domain | Actions |
|-------------------|-------------------------|
| pokemonlocator.be | + Issue |
| pokemonlocator.nl | + Issue |

Showing 1 to 2 of 2 entries

Previous Next

Security

Your domains with Let's Encrypt certificates

Show entries

| Domain | Alt Names | Status | Expiry |
|-------------------|-----------------------|-----------|-------------|
| pokemonlocator.be | www.pokemonlocator.be | Installed | 14 Oct 2016 |
| pokemonlocator.nl | www.pokemonlocator.nl | Installed | 14 Oct 2016 |

Showing 1 to 2 of 2 entries

Security

Edit your .htaccess

```
# Force SSL
RewriteCond %{HTTPS} off [OR]
RewriteCond %{HTTP_HOST} ^www.my-website\.be*
RewriteRule ^(.*)$ https://my-website.be/$1 [L,R=301]
```

More info: <https://fonsvandamme.be/blog/using-ssl-drupal-website>

That's all folks!

Thank you for your attention, are there any questions?





DRUPALCAMP GHENT
2016

9 / 10 SEPTEMBER

GROW SOME IDEAS



nucleus
Hosting Solution Builder



Dropsolid
Makkelijk Digitaal Ondernemen

uniway
MEMBER OF SII GROUP
Business Critical Internet Solutions



AMPLEXOR

OPEN UP MEDIA

wunderkraut