

CODING WITH DRUPAL 8

ViennaPHP 2015/01

by [Wolfgang Ziegler / @the_real_fago](#)

ABOUT ME

- Wolfgang Ziegler
- @the_real_fago auf Twitter
- drupal.org/u/fago
- CEO of drunomics

CONTRIBUTIONS

- Diverse modules since ca. 2006
 - Rules
 - Entity API
 - Field-collection
 - Profile2
- Drupal core subsystem maintainer
 - Form system
 - Entity API
- Leader of the Drupal 8 Entity API "Initiative"

#D8RULES

see d8rules.org

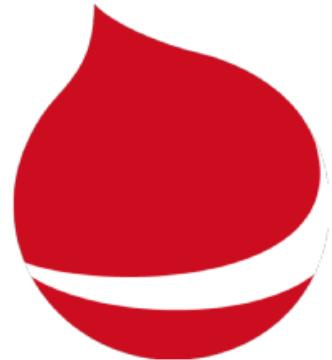
DRUPAL?

WHAT IS DRUPAL

- A module open source CMS
- Social software
- Runs on PHP, MySQL/PostgreSQL/... (LAMP)
- more than 2% of the web
- >1 mio. drupal.org user
- ~15.000 Community-modules

ACTIVE COMMUNITY

- Local user group
- Lots of Drupal camps
- drupal-austria.at & drupical.com



drupal[austria](http://austria.at)

2000

MORE THAN
1,000
PEOPLE CONTRIBUTED TO DRUPAL 8

→ Drupal is a great software and a great community.

WHEATHER.COM

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- / 40°
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**UPCOMING EVENTS****OVERVIEW
UPDATES****All**

Event

Idea

Blog

News

Docs

Photo

Video

ICycle4Arctic DC**Act for Arctic Community Call and Training - September 30th!**

September 30, 2014 - 7:00 PM

Raleigh Volunteer Meeting For Solar Schools & People's Cli...

October 1, 2014 - 6:00 PM



A NEW DRUPAL!

- Same concepts, new code
- Useful out-of-the box
- Currently in beta

SOME FEATURES

- Improved authoring experience
- Fully translatable
- Configuration management
- Views in core
- Easier theming (twig)

DRUPAL CODING HISTORY

DRUPAL <= 7

- Prozedural, PHP 4 style
- Funktionen, Arrays
- Hooks -> Modularität

HOOKS

modules/some_module/some_module.module:

```
$info = module_invoke_all('node_type_info', $some_arg);
```

modules/another_module/another_module.module:

```
function ANOTHER_MODULE_node_type_info($some_arg) {
  return array('some_type' => array('label' => 'example'));
```

IMPLEMENTATION

of forms, blocks or menu items, ...

via

- Arrays
- Callbacks
- Arrays
- X-times nested arrays

CODING WITH DRUPAL 7

- Easy start
- but under the hood:
hard to grasp

PHP RENAISSANCE

- PHP components
- PHP Framework Interopability Group (FIG)
- PSR-0, PSR-4 Autoloading Standards
- Active development of PHP
- Performance improvements
(PHP-7, HHVM)

NAMESPACES

- since PHP 5.3
- Foundation for components
 - `Symfony\Component\HttpFoundation`
 - `Doctrine\Common\Annotations`
 - `Drupal\Core\Entity`

USING NAMESPACES

```
<?php

namespace MyProject\Component;

use Symfony\Component\HttpFoundation\Request;

class SomeClass {

    public function someMethod(Request $request) {

        if ($request->getPort() != 80) {
            throw new \LogicException("Application may work on port 80 only.");
        }

    }
}
```

COMPOSER

- Dependency manager for PHP
- Use and publish packages
- Package-metadata: composer.json
- Repository: packagist.org

composer.json

```
{  
    "name": "drupal/drupal",  
    "description": "Drupal is an open source content management....",  
    "type": "drupal-core",  
    "require": {  
        "php": ">5.4.4-13",  
        "twig/twig": "1.15.*",  
        "symfony/class-loader": "2.5.*",  
        "symfony/dependency-injection": "2.5.*",  
        "symfony/event-dispatcher": "2.5.*",  
        "symfony/http-foundation": "2.5.*",  
        "symfony/http-kernel": "2.5.*",  
        "symfony/routing": "2.5.*",  
        "symfony/validator": "2.5.*",  
        ...  
    }  
}
```

CODING WITH DRUPAL 8

- getting off the island
- object oriented
- OOP basics are necessary

COMPONENTS IN DRUPAL 8

- Symfony components (...)
- Twig
- PHPUnit
- Guzzle
- ZendFeed
- Doctrine (Annotations)

**LEARNING CODING
WITH
DRUPAL 8 IS...**

LEARNING PHP CODING!

PHP BEST PRACTICES

<http://www.phptherightway.com>

DRUPAL 8: THE ESSENTIALS!

OVERVIEW

- Modules
- Controller, Routing & Menus
- Plugin system
- Entities & Fields
- Configuration system

MODULES

DIRECTORY STRUCTURE

```
core/modules
    ├── action
    └── aggregator
    ...
modules/some_module/
    ├── config
    ├── css
    ├── js
    ├── src
    │   └── Entity
    │       └── SomeEntity.php
    ├── templates
    ├── tests
    ├── some_module.info.yml
    └── some_module.module
```

some_module.info.yml

```
name: Some module
type: module
description: 'A description, usually in English.'
package: Some
core: 8.x
dependencies:
  - text
  - entity_reference
```

DIRECTORY STRUCTURE

```
core/modules
  └── action
  └── aggregator
  ...
modules/some_module/
  ├── config
  ├── css
  ├── js
  └── src
    └── Entity
      └── SomeEntity.php
  ├── templates
  ├── tests
  ├── some_module.info.yml
  └── some_module.module
```

some_module/src/Entity/SomeEntity.php

```
<?php

/**
 * @file
 * Contains \Drupal\some_module\Entity\SomeEntity.
 */

namespace Drupal\some_module\Entity;

/**
 * Serves as an example class in some module.
 */
class SomeEntity {
    //...
}
```

MODULE INTERACTION

- Services, Plugins
- Events (Symfony)
- Hooks

CONTROLLER, ROUTING & MENUS

CONTROLLER

- Part of the **MVC** module
- Captures the behavior of the app
- Controls the ouput / HTTP response

EXAMPLE: USERCONTROLLER

```
<?php

class UserController extends ControllerBase {

    public function userPage() {
        $user = $this->currentUser();
        if ($user->id()) {
            $response = $this->redirect('entity.user.canonical',
                                         array('user' => $user->id()));
        }
        else {
            $form_builder = $this->formBuilder();
            $response = $form_builder->getForm('Drupal\user\Form\UserLoginForm');
        }
        return $response;
    }
}
```

ROUTING

Which controller is in charge of
`/path/123?example=1`
?

core/modules/user/user.routing.yml

```
user.page:
  path: '/user'
  defaults:
    _content: '\Drupal\user\Controller\UserController::userPage'
    _title: 'Log in'
  requirements:
    _access: 'TRUE'
```

core/modules/user/user.routing.yml

```
entity.user.canonical:
  path: '/user/{user}'
  defaults:
    _entity_view: 'user.full'
    _title_callback: 'Drupal\user\Controller\UserController::userTitle'
  requirements:
    _entity_access: 'user.view'
```

HTTP & ROUTING

- based on multiple Symfony components
- HTTP foundation replace `$_GET`, `$_POST`, etc.
- Replacement: `$request` & `$response` objects

MENU SYSTEM

core/modules/user/user.links.menu.yml

```
user.logout:
  title: 'Log out'
  route_name: user.logout
  weight: 10
  menu_name: account
```

PLUGIN SYSTEM

PLUGINS?

- small functional units
- defined interface
- exchangeable
- different plugin types, e.g.:
 - Field types (text, integer, image..)
 - Field widgets & formatters
 - Blocks

PLUGINS & MODULES

- Modules can provide plugins
- Modules can define plugin types
- Replace lots of hooks

IMPLEMENTING A PLUGIN

- Adding a php class (in the proper directory)
- Implementing an interface
- Adding an annotation

EXAMPLE: PROVIDE A BLOCK

- `BlockPluginInterface`
- `extend BlockBase`

./search/src/Plugin/Block/SearchBlock.php

```
/**
 * @Block(
 *   id = "search_form_block",
 *   admin_label = @Translation("Search form"),
 *   category = @Translation("Forms")
 * )
 */
class SearchBlock extends BlockBase {

  protected function blockAccess(AccountInterface $account) {
    return $account->hasPermission('search content');
  }
  public function build() {
    return \Drupal::formBuilder()->getForm('Drupal\search\Form\SearchBlockForm')
  }
}
```

ADVANTAGES OF PLUGINS

- self-contained
- clearly documented (interfaces)
- class autoloading

ENTITIES & FIELDS

Drupal's data model

ENTITY SYSTEM

- replaces direct database access
- CRUD und Query APIs
- Storage in-dependent

ENTITY CRUD

```
$node = Node::create(array(  
    'type' => 'page',  
    'title' => 'Example',  
$node->save();  
  
$id = $node->id();  
$node = Node::load($id);  
  
$node->delete();
```

ENTITY QUERY

```
$term_ids = \Drupal::entityQuery('taxonomy_term')
  ->condition('vid', $vocabulary_id)
  ->execute();
```

ENTITIES

Content

+

Configuration

CONFIGURATION ENTITIES

- Stored as configuration
- Simple objects with properties
- Node types, Views, Image styles, ...

CONTENT ENTITIES

- Fieldable
- Revisionable
- Translatable
- Content nodes, Users, Comments, ...

CONTENT ENTITIES

- Consist only of fields
- Field values are objects
- Entity-displays control display and forms
- Fields controlled by code or config

..../comment/src/Entity/Comment.php

```
/**  
 * @ContentEntityType(  
 *   id = "comment",  
 *   label = @Translation("Comment"),  
 *   handlers = {  
 *     "storage" = "Drupal\comment\CommentStorage",  
 *     "access" = "Drupal\comment\CommentAccessControlHandler",  
 *     "view_builder" = "Drupal\comment\CommentViewBuilder",  
 *     "form" = {  
 *       "default" = "Drupal\comment\CommentForm",  
 *     },  
 *   },  
 *   base_table = "comment",  
 *   data_table = "comment_field_data",  
 *   ....  
 */  
class Comment extends ContentEntityBase implements CommentInterface {
```

..../comment/src/Entity/Comment.php

```
class Comment extends ContentEntityBase implements CommentInterface {  
    public static function baseFieldDefinitions($entity_type) {  
  
        $fields['mail'] = BaseFieldDefinition::create('email')  
            ->setLabel(t('Email'))  
            ->setDescription(t("The comment author's email address."))  
            ->setTranslatable(TRUE);  
        $fields['uid'] = BaseFieldDefinition::create('entity_reference')  
            ->setLabel(t('User ID'))  
            ->setDescription(t('The user ID of the comment author.'))  
            ->setTranslatable(TRUE)  
            ->setSetting('target_type', 'user')  
            ->setDefaultValue(0);  
  
        return $fields;  
    }  
}
```

CONFIGURATION SYSTEM

CONFIGURATION

- Content types, fields
- Entity displays, widgets, formatters
- Views, blocks
- System settings (Cache,..)
- ...

FEATURES

- Simple import / export (YAML)
- fully translatable (Config schema)
- Default-config for modules and distributions

book.settings.yml

```
allowed_types:
  - book
block:
  navigation:
    mode: 'all pages'
child_type: book
```

core/modules/book/config/*

```
|── install
|   ├── book.settings.yml
|   ├── core.base_field_override.node.book.promote.yml
|   ├── core.entity_view_mode.node.print.yml
|   └── node.type.book.yml
└── schema
    └── book.schema.yml
```

book/config/schema/book.schema.yml

```
book.settings:
  type: mapping
  label: 'Book settings'
  mapping:
    allowed_types:
      type: sequence
      label: 'Content types allowed in book outlines'
      sequence:
        - type: string
          label: 'Content type'
    block:
      type: mapping
      label: 'Block'
      mapping:
        navigation:
          type: mapping
          label: 'Navigation'
```

CONFIG API

```
$config = \Drupal::config('book.settings');
$allowed_types = $config->get('allowed_types');

$config = \Drupal::configFactory()->getEditable('book.settings')
$config->set('allowed_types', array('page', 'book'));
$config->save();
```

TESTS

- Unit tests (PHPUnit)
- Integration tests (Simpletest, PHPUnit)
- Functional tests (Simpletest, behat)

DOCUMENTATION

- <https://www.drupal.org/developing/api/8>
- <https://api.drupal.org/api/drupal/8>
- Diverse blog posts (Google)
- Examples in Drupal 8 core (tests!)

QUESTIONS?

THANK YOU

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