BUILDING YOUR LEGOS

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WHO AM I?

Chris Greatens (chris.greatens@hs2solutions.com, @cgreaten)

- Director of Drupal Development for HS2 Solutions
- Drupalist since 2009
- Acquia Certified Drupal 7 & 8 Grand Master
- Building websites since 1995

HS2 SOLUTIONS

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zipcar

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P&G

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AON Hewitt

CHS Community Health Systems

fitbit

Centura Health

Wilson

spring

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What's the Big Idea?

WHY BUILD YOUR LEGOS?

HOW DID HS2 BUILD ITS LEGOS?

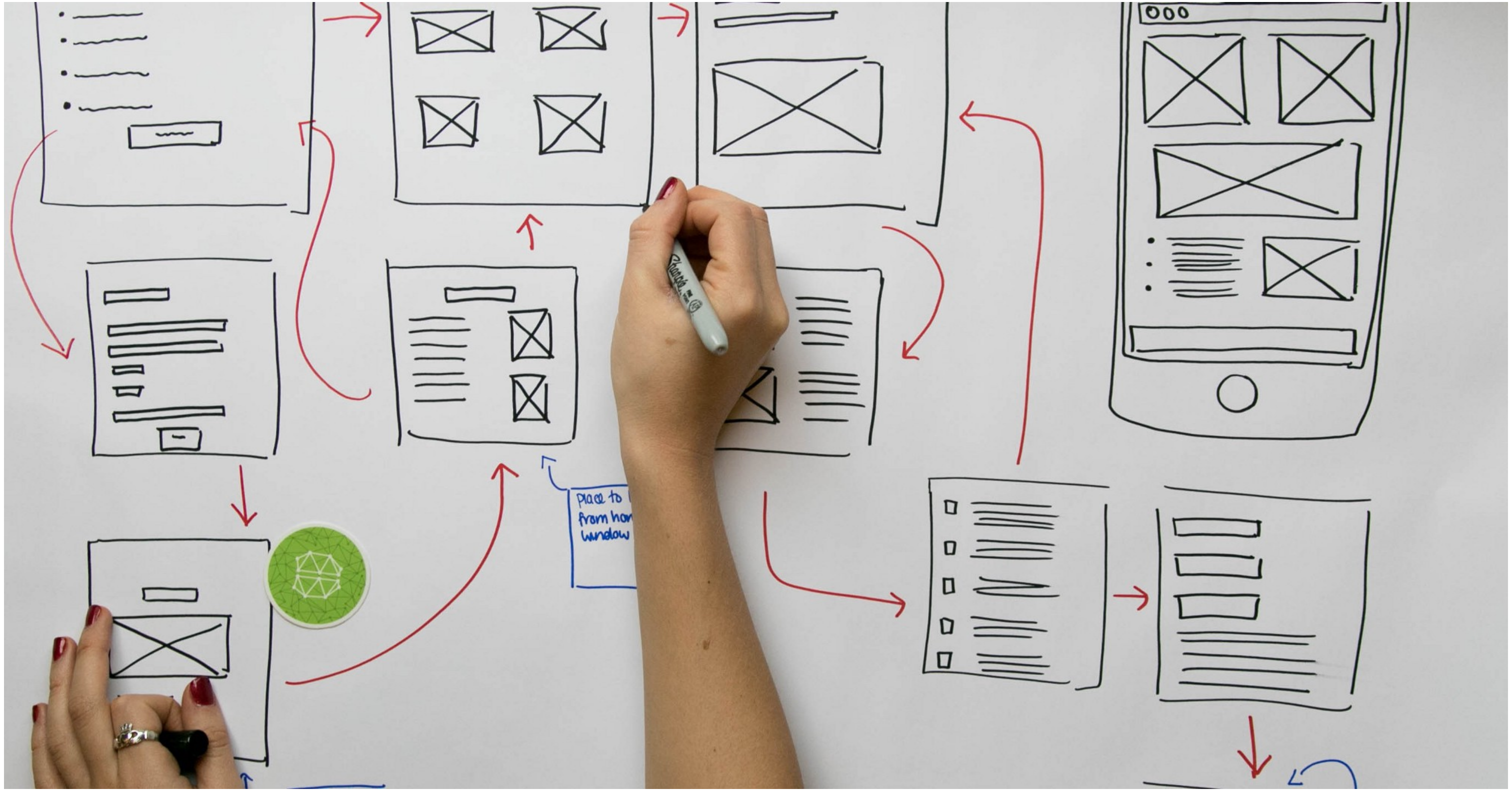
WHAT FACTORS SHOULD BE CONSIDERED?

WHY BUILD YOUR LEGOS?

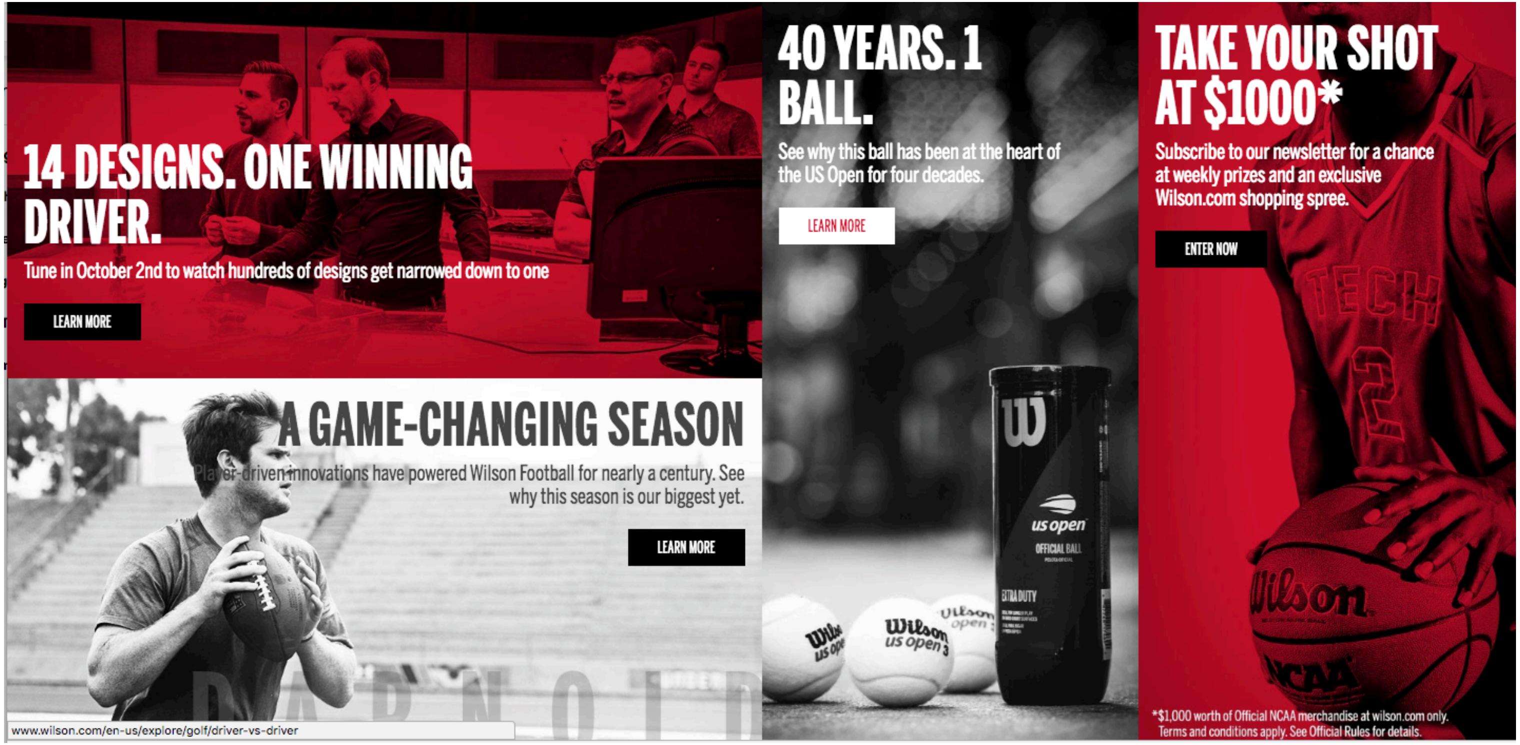
WHAT ARE LEGOS?

THE STRUGGLE

THE STRUGGLE



THE SPARK



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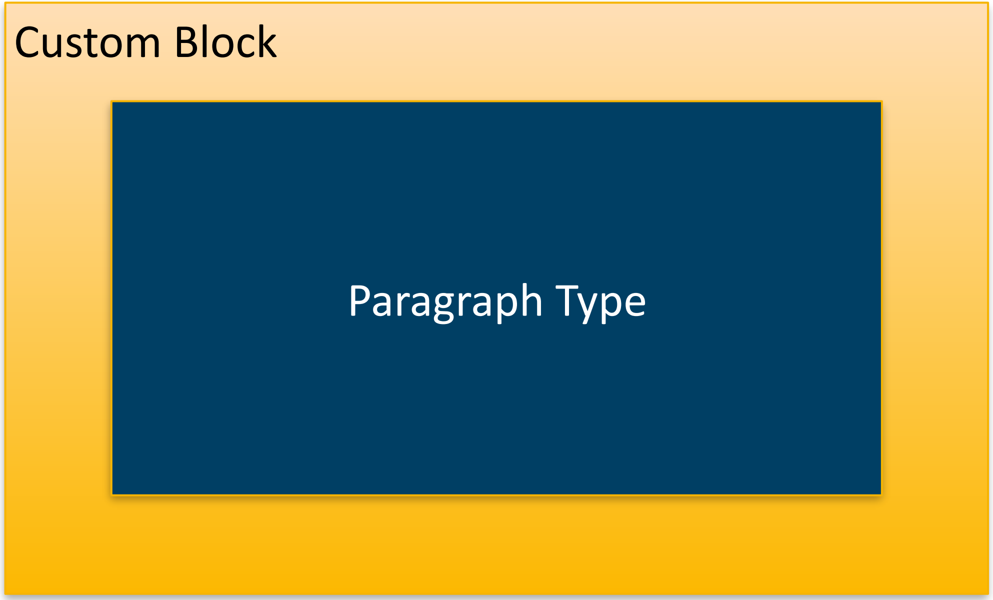
BUILDING OUR LEGOS

WHAT SHOULD WE BUILD?

GET ALL THE INFORMATION YOU CAN, WE'LL THINK OF A USE FOR IT LATER.
CHRIS

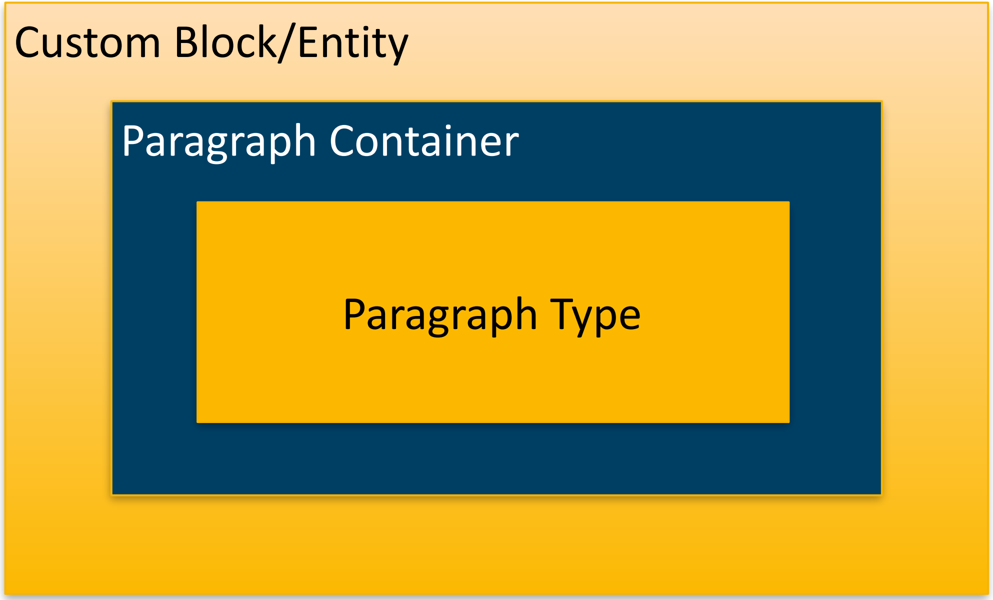
VERSION 1.0



Custom Block

Paragraph Type

MAKE IT EVEN BETTER


Custom Block/Entity

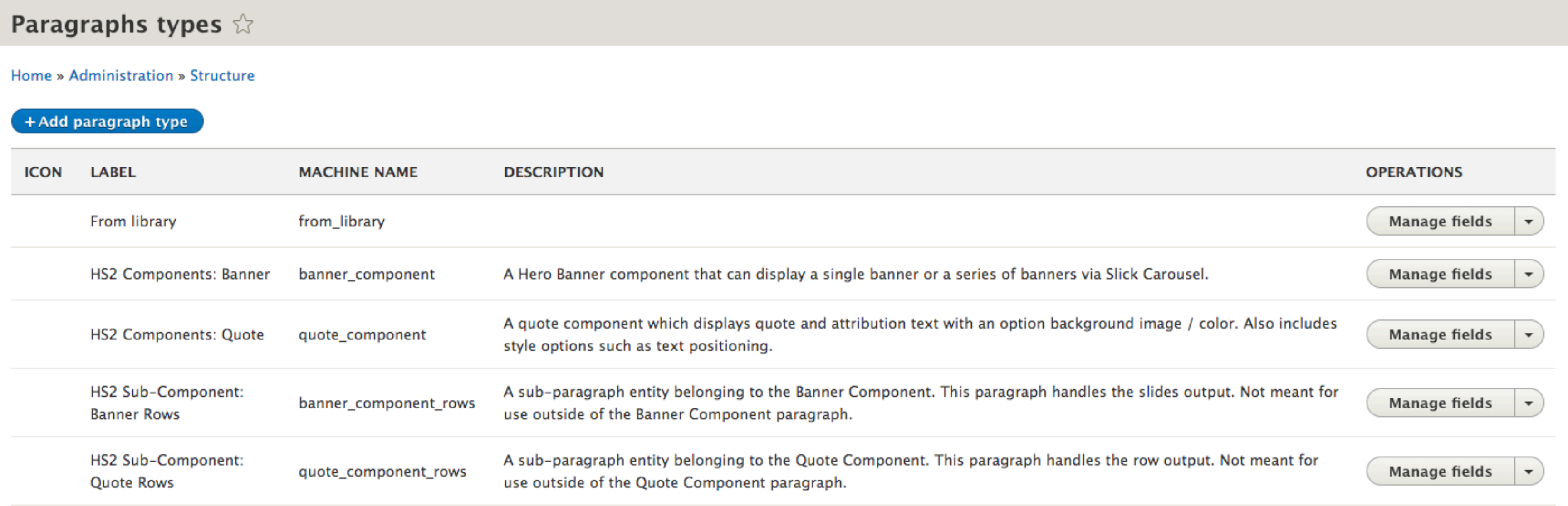
Paragraph Container

Paragraph Type

HOUSTON, WE HAVE A PROBLEM

EXAMPLE: HERO BANNER

PARAGRAPH TYPES

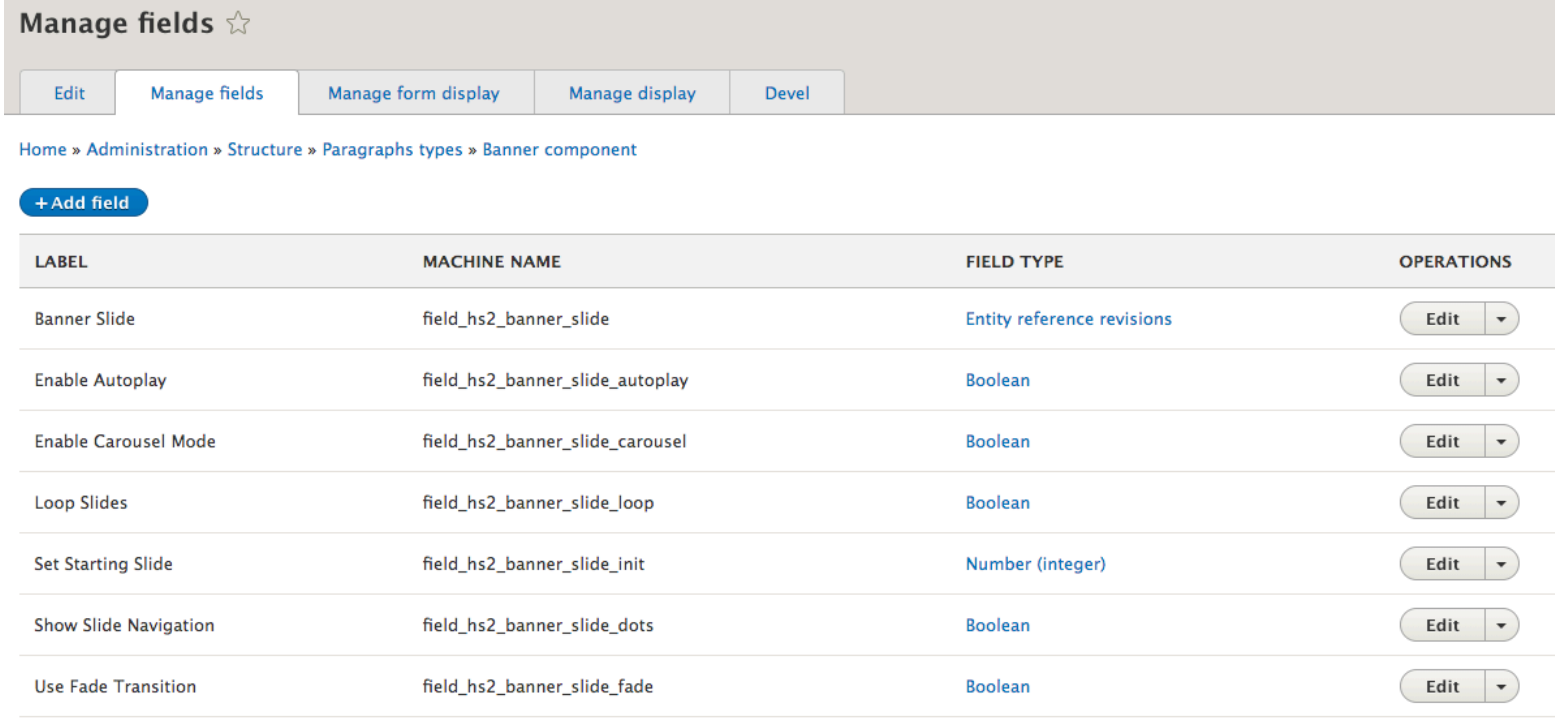


Paragraphs types ☆

Home » Administration » Structure

ICON	LABEL	MACHINE NAME	DESCRIPTION	OPERATIONS
	From library	from_library		Manage fields ▾
	HS2 Components: Banner	banner_component	A Hero Banner component that can display a single banner or a series of banners via Slick Carousel.	Manage fields ▾
	HS2 Components: Quote	quote_component	A quote component which displays quote and attribution text with an option background image / color. Also includes style options such as text positioning.	Manage fields ▾
	HS2 Sub-Component: Banner Rows	banner_component_rows	A sub-paragraph entity belonging to the Banner Component. This paragraph handles the slides output. Not meant for use outside of the Banner Component paragraph.	Manage fields ▾
	HS2 Sub-Component: Quote Rows	quote_component_rows	A sub-paragraph entity belonging to the Quote Component. This paragraph handles the row output. Not meant for use outside of the Quote Component paragraph.	Manage fields ▾

CONTAINER FIELDS

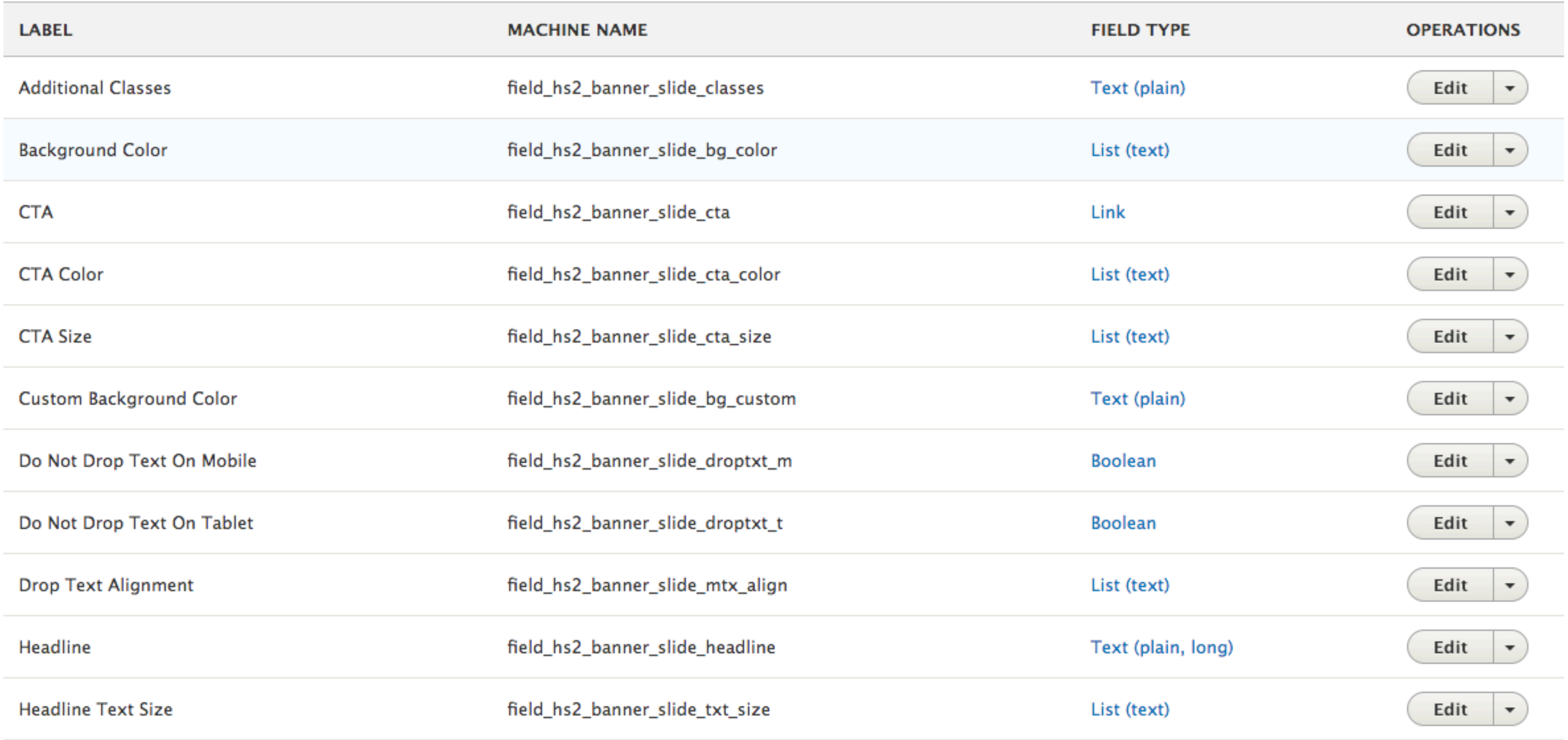


Manage fields ☆

Home » Administration » Structure » Paragraphs types » Banner component

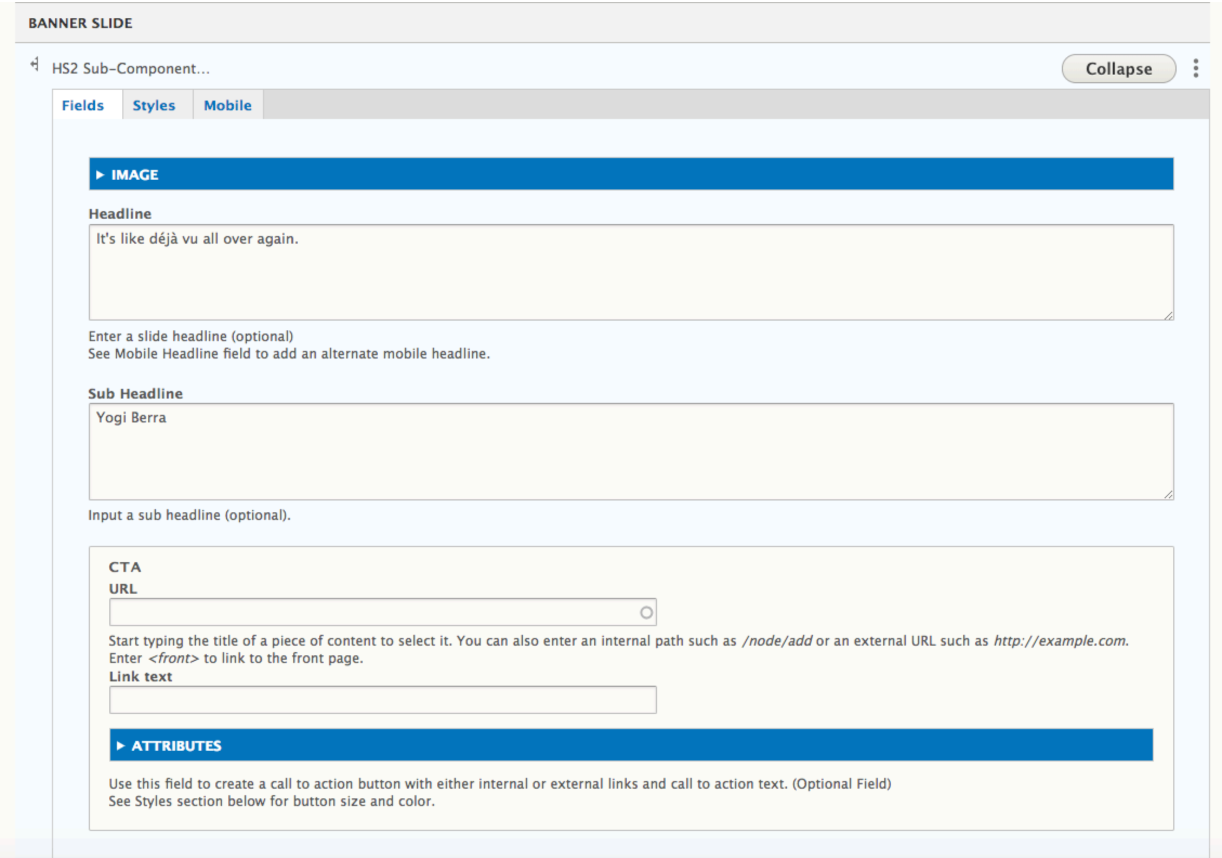
LABEL	MACHINE NAME	FIELD TYPE	OPERATIONS
Banner Slide	field_hs2_banner_slide	Entity reference revisions	Edit ▾
Enable Autoplay	field_hs2_banner_slide_autoplay	Boolean	Edit ▾
Enable Carousel Mode	field_hs2_banner_slide_carousel	Boolean	Edit ▾
Loop Slides	field_hs2_banner_slide_loop	Boolean	Edit ▾
Set Starting Slide	field_hs2_banner_slide_init	Number (integer)	Edit ▾
Show Slide Navigation	field_hs2_banner_slide_dots	Boolean	Edit ▾
Use Fade Transition	field_hs2_banner_slide_fade	Boolean	Edit ▾

SUB-COMPONENT FIELDS



LABEL	MACHINE NAME	FIELD TYPE	OPERATIONS
Additional Classes	field_hs2_banner_slide_classes	Text (plain)	Edit ▾
Background Color	field_hs2_banner_slide_bg_color	List (text)	Edit ▾
CTA	field_hs2_banner_slide_cta	Link	Edit ▾
CTA Color	field_hs2_banner_slide_cta_color	List (text)	Edit ▾
CTA Size	field_hs2_banner_slide_cta_size	List (text)	Edit ▾
Custom Background Color	field_hs2_banner_slide_bg_custom	Text (plain)	Edit ▾
Do Not Drop Text On Mobile	field_hs2_banner_slide_droptxt_m	Boolean	Edit ▾
Do Not Drop Text On Tablet	field_hs2_banner_slide_droptxt_t	Boolean	Edit ▾
Drop Text Alignment	field_hs2_banner_slide_mtx_align	List (text)	Edit ▾
Headline	field_hs2_banner_slide_headline	Text (plain, long)	Edit ▾
Headline Text Size	field_hs2_banner_slide_txt_size	List (text)	Edit ▾

CREATE A BLOCK



Headline

It's like déjà vu all over again.

Enter a slide headline (optional)
See Mobile Headline field to add an alternate mobile headline.

Sub Headline

Yogi Berra

Input a sub headline (optional).

CTA

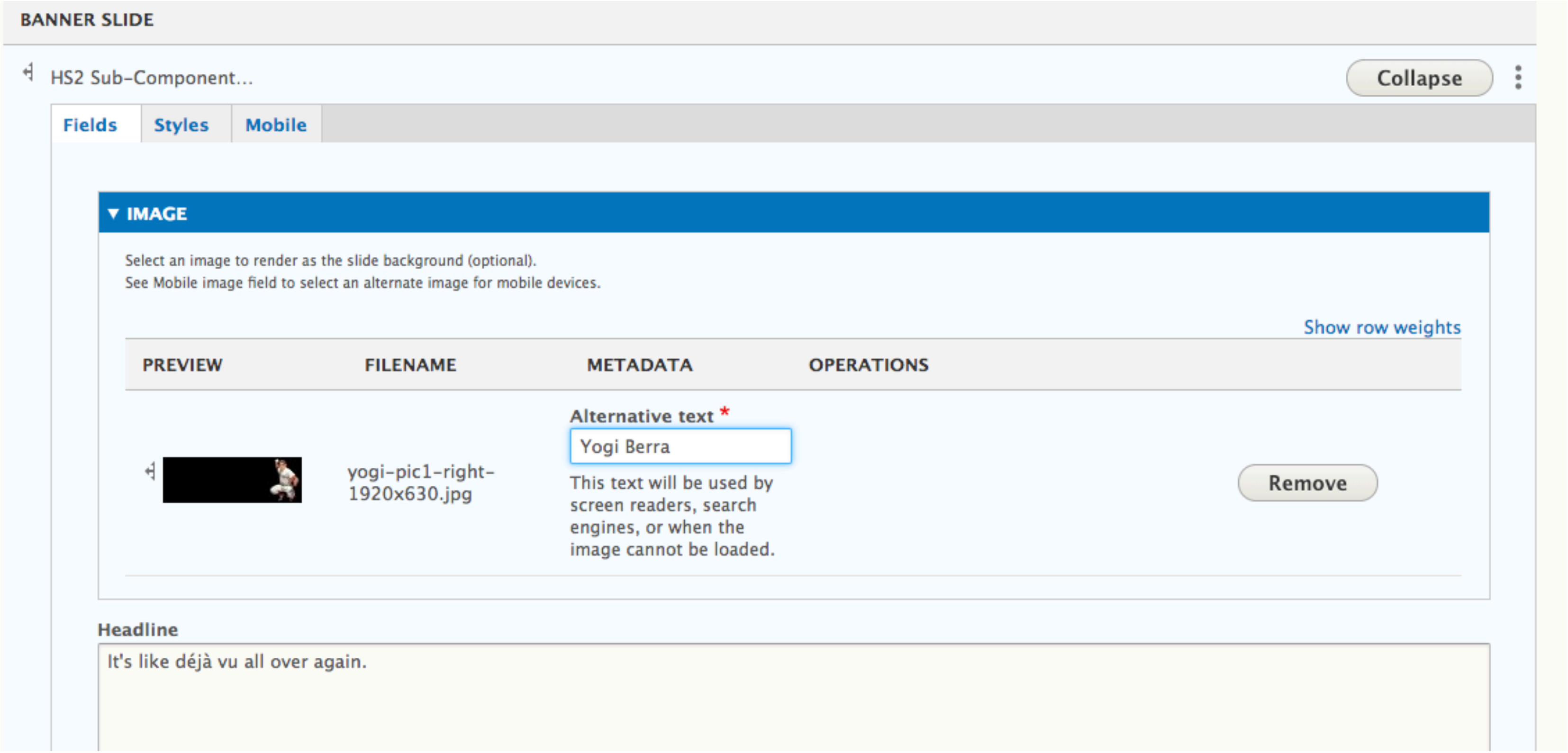
URL

Start typing the title of a piece of content to select it. You can also enter an internal path such as */node/add* or an external URL such as *http://example.com*. Enter *<front>* to link to the front page.

Link text

Use this field to create a call to action button with either internal or external links and call to action text. (Optional Field)
See Styles section below for button size and color.

CREATE A BLOCK



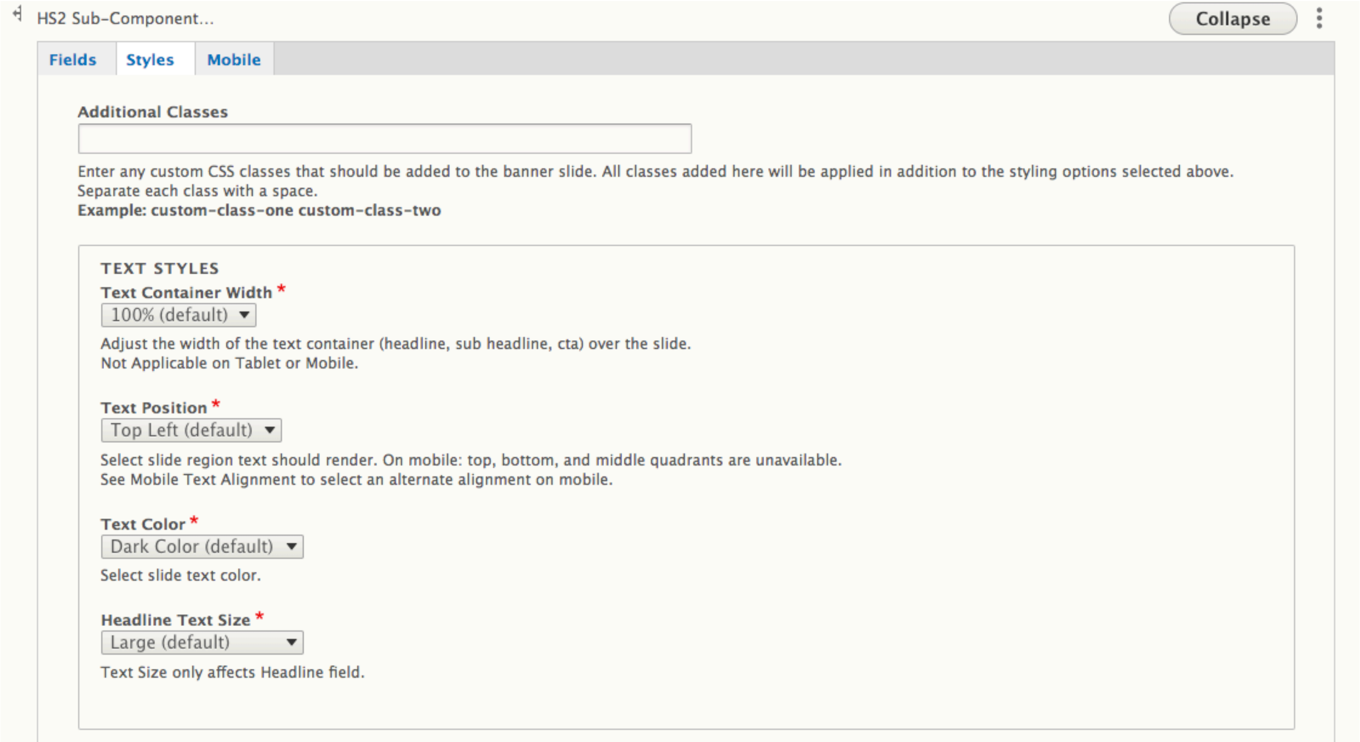
Select an image to render as the slide background (optional).
See Mobile image field to select an alternate image for mobile devices.

PREVIEW	FILENAME	METADATA	OPERATIONS
	yogi-pic1-right-1920x630.jpg	Alternative text * Yogi Berra This text will be used by screen readers, search engines, or when the image cannot be loaded.	Remove

Headline

It's like déjà vu all over again.

STYLE YOUR TEXT



Additional Classes

Enter any custom CSS classes that should be added to the banner slide. All classes added here will be applied in addition to the styling options selected above.
Separate each class with a space.
Example: custom-class-one custom-class-two

TEXT STYLES

Text Container Width *
100% (default) ▾
Adjust the width of the text container (headline, sub headline, cta) over the slide.
Not Applicable on Tablet or Mobile.

Text Position *
Top Left (default) ▾
Select slide region text should render. On mobile: top, bottom, and middle quadrants are unavailable.
See Mobile Text Alignment to select an alternate alignment on mobile.

Text Color *
Dark Color (default) ▾
Select slide text color.

Headline Text Size *
Large (default) ▾
Text Size only affects Headline field.

IMAGE STYLES

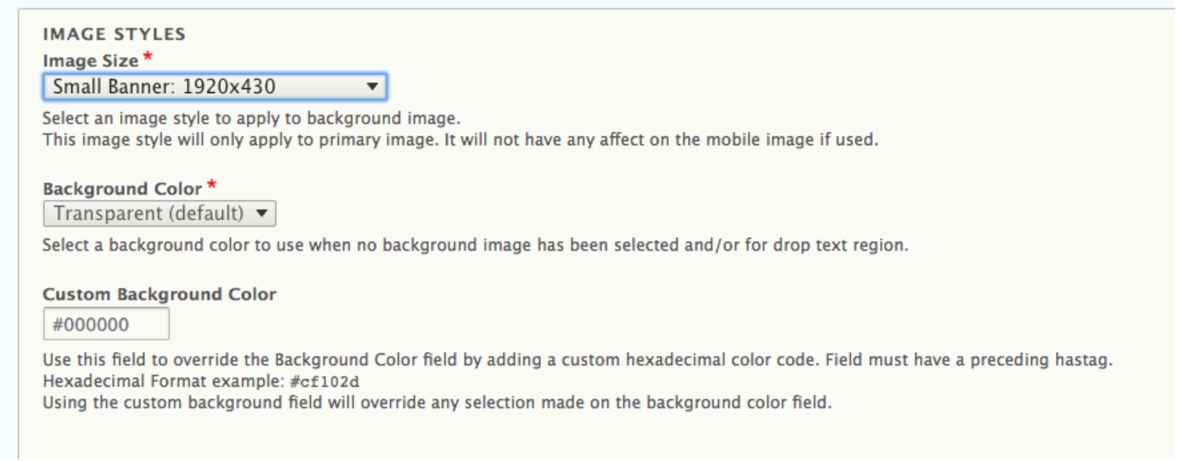


IMAGE STYLES

Image Size *

Small Banner: 1920x430

Select an image style to apply to background image.
This image style will only apply to primary image. It will not have any affect on the mobile image if used.

Background Color *

Transparent (default)

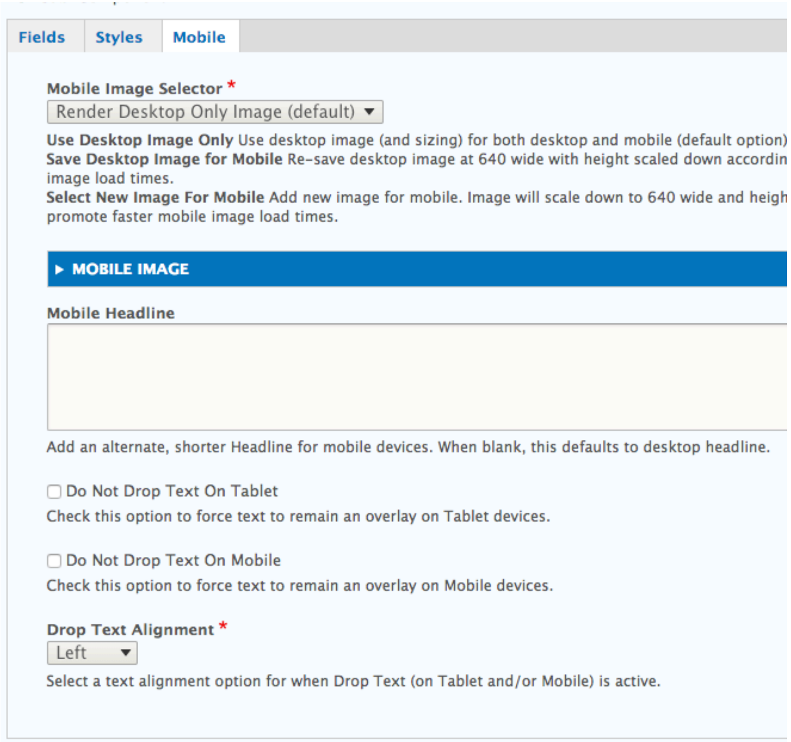
Select a background color to use when no background image has been selected and/or for drop text region.

Custom Background Color

#000000

Use this field to override the Background Color field by adding a custom hexadecimal color code. Field must have a preceding hastag.
Hexadecimal Format example: `#cf102d`
Using the custom background field will override any selection made on the background color field.

MOBILE STYLES



Mobile Image Selector *

Render Desktop Only Image (default) ▾

Use Desktop Image Only Use desktop image (and sizing) for both desktop and mobile (default option)
Save Desktop Image for Mobile Re-save desktop image at 640 wide with height scaled down accordin
image load times.
Select New Image For Mobile Add new image for mobile. Image will scale down to 640 wide and heigh
promote faster mobile image load times.

▸ MOBILE IMAGE

Mobile Headline

Add an alternate, shorter Headline for mobile devices. When blank, this defaults to desktop headline.

□ Do Not Drop Text On Tablet

Check this option to force text to remain an overlay on Tablet devices.

□ Do Not Drop Text On Mobile

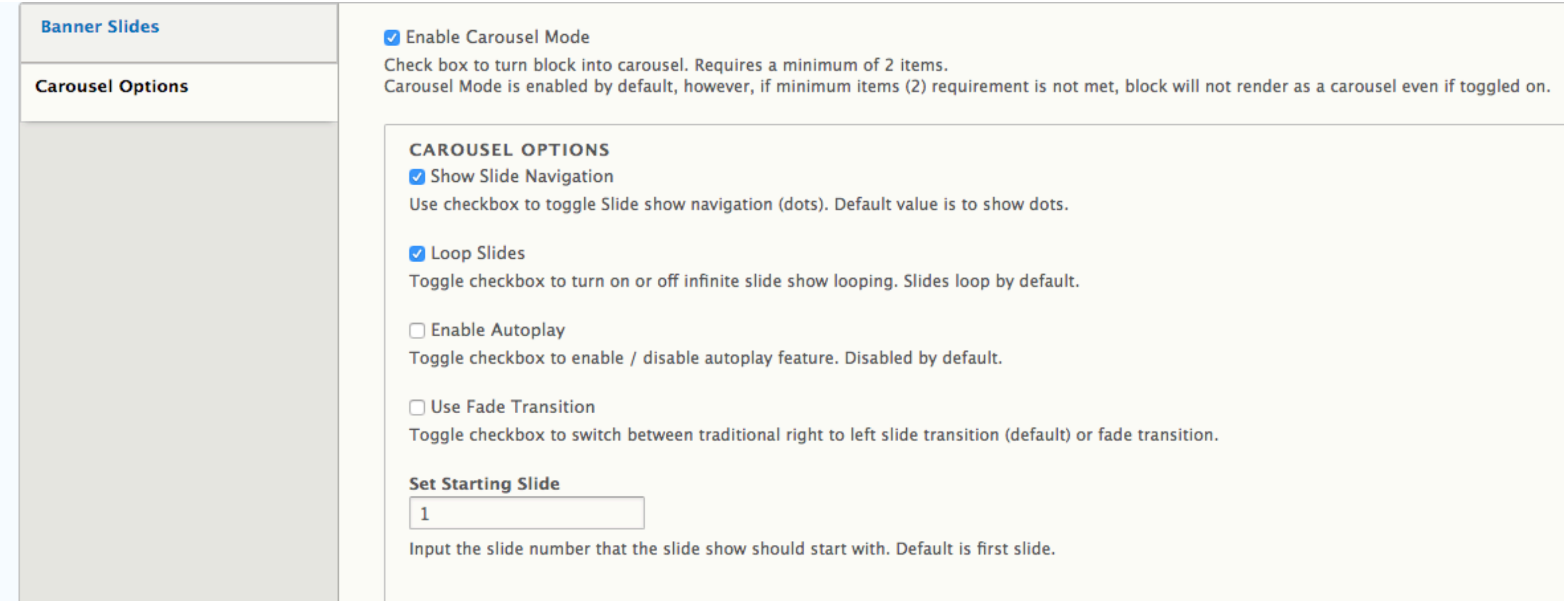
Check this option to force text to remain an overlay on Mobile devices.

Drop Text Alignment *

Left ▾

Select a text alignment option for when Drop Text (on Tablet and/or Mobile) is active.

CAROUSEL OPTIONS



☑ Enable Carousel Mode

Check box to turn block into carousel. Requires a minimum of 2 items.
Carousel Mode is enabled by default, however, if minimum items (2) requirement is not met, block will not render as a carousel even if toggled on.

CAROUSEL OPTIONS

☑ Show Slide Navigation

Use checkbox to toggle Slide show navigation (dots). Default value is to show dots.

☑ Loop Slides

Toggle checkbox to turn on or off infinite slide show looping. Slides loop by default.

☐ Enable Autoplay

Toggle checkbox to enable / disable autoplay feature. Disabled by default.

☐ Use Fade Transition

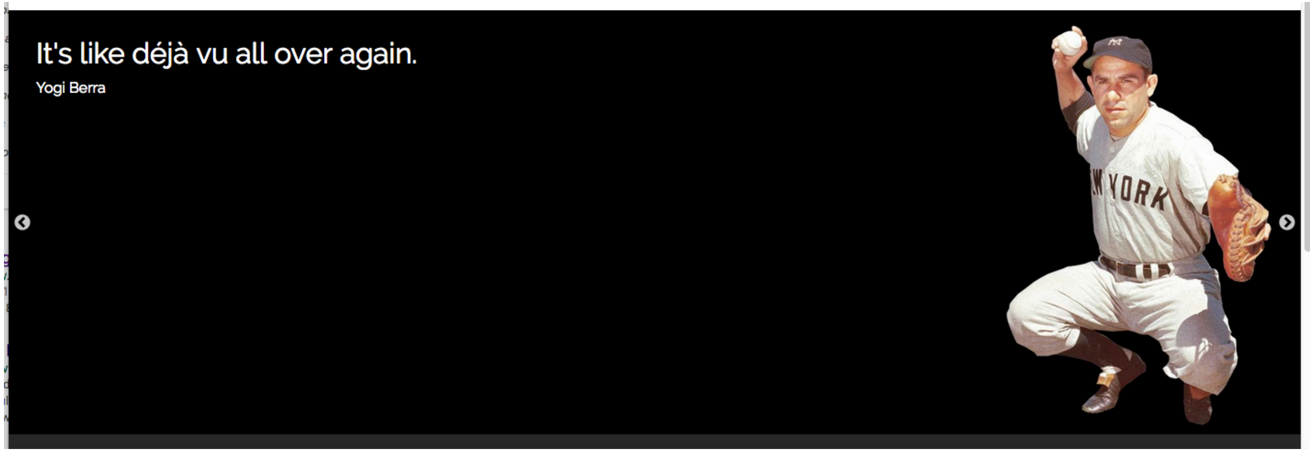
Toggle checkbox to switch between traditional right to left slide transition (default) or fade transition.

Set Starting Slide

1

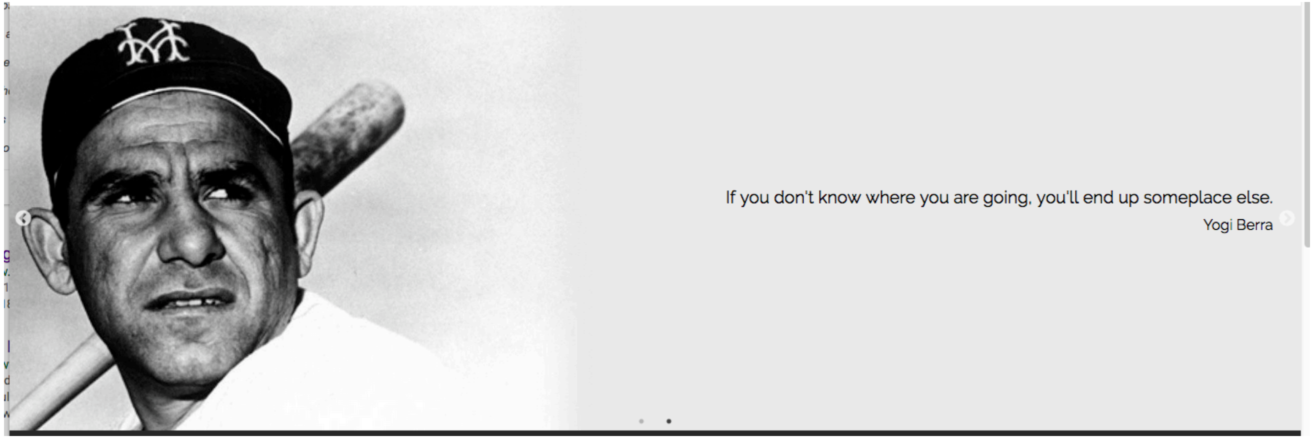
Input the slide number that the slide show should start with. Default is first slide.

EXAMPLES



It's like déjà vu all over again.

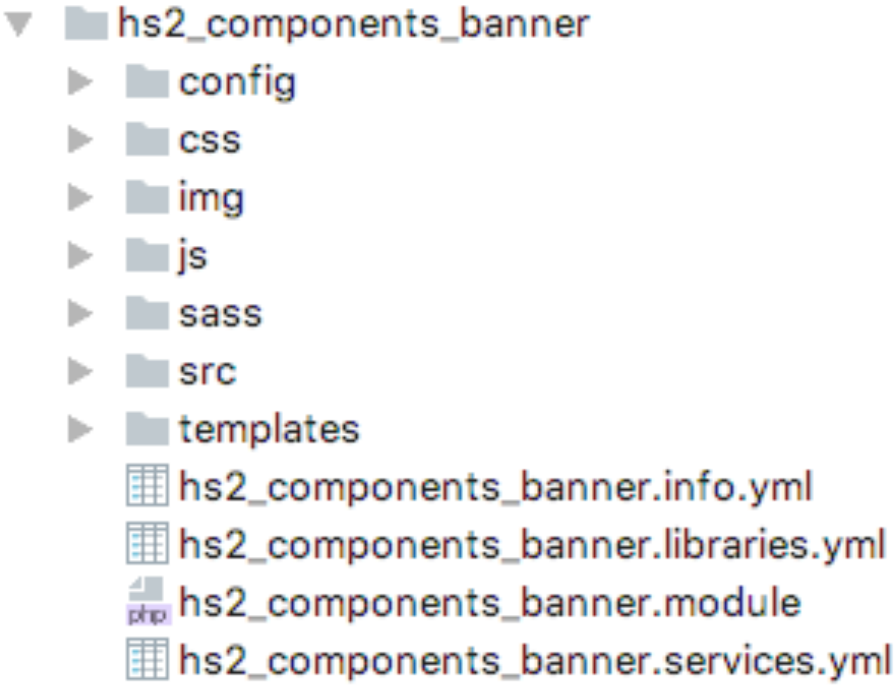
Yogi Berra



If you don't know where you are going, you'll end up someplace else.

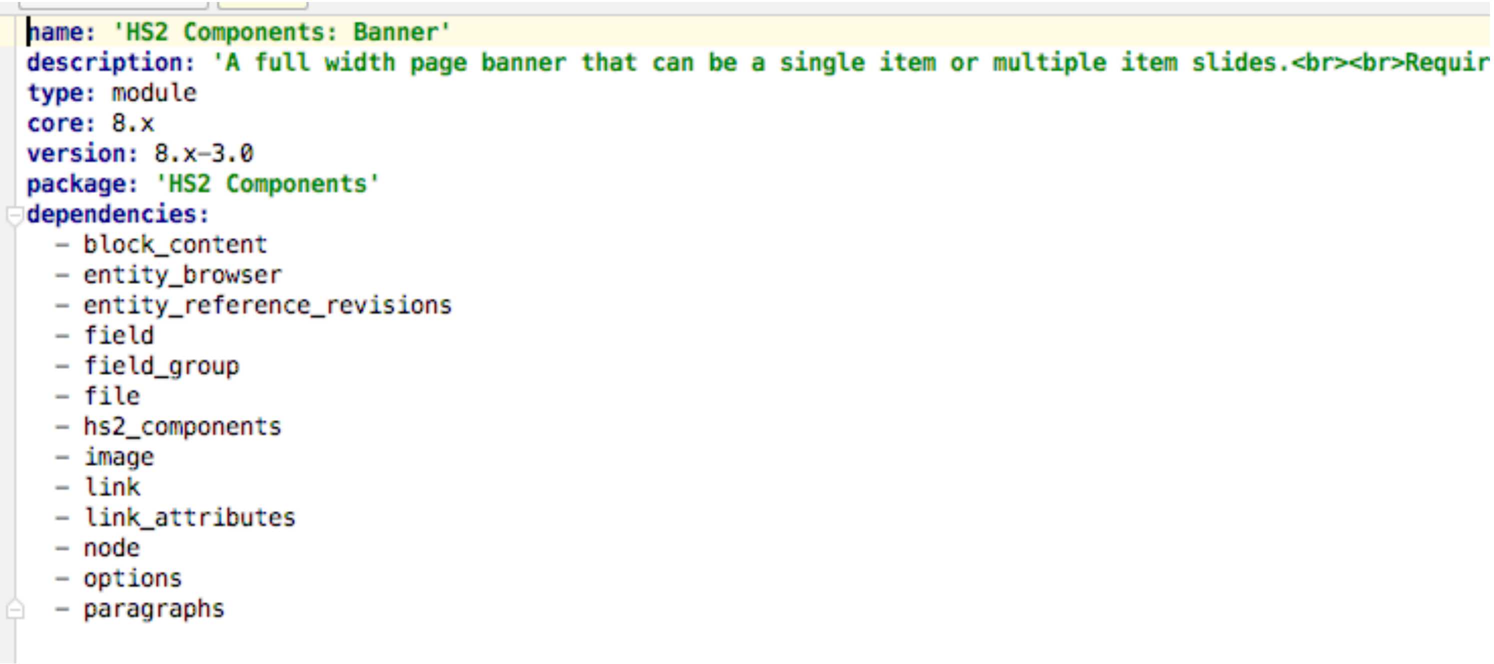
Yogi Berra

MODULE LAYOUT



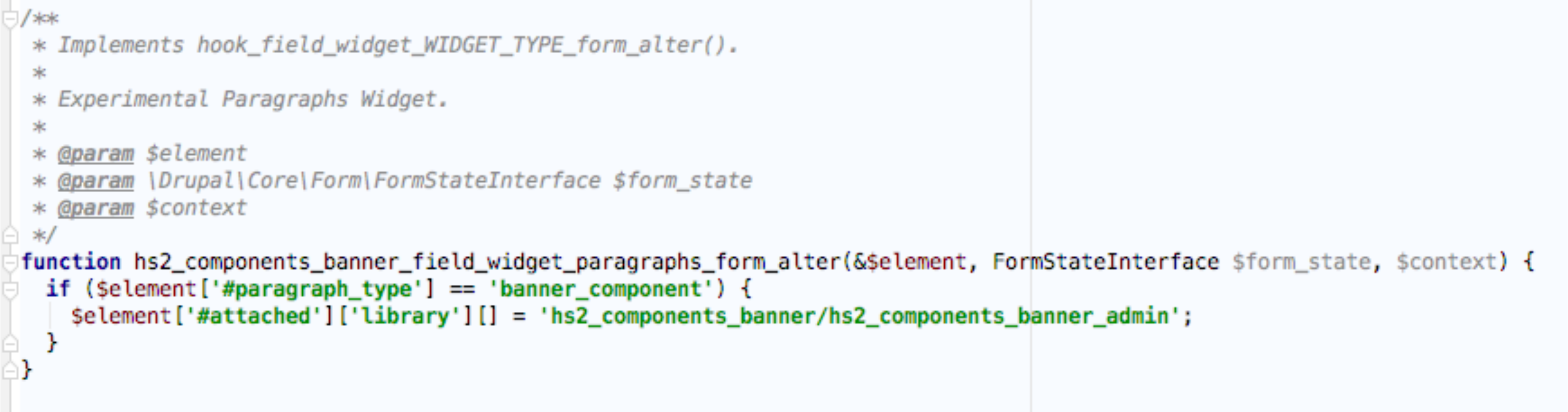
```
▼ hs2_components_banner
    ▶ config
    ▶ css
    ▶ img
    ▶ js
    ▶ sass
    ▶ src
    ▶ templates
      hs2_components_banner.info.yml
      hs2_components_banner.libraries.yml
      hs2_components_banner.module
      hs2_components_banner.services.yml
```

BANNER INFO FILE



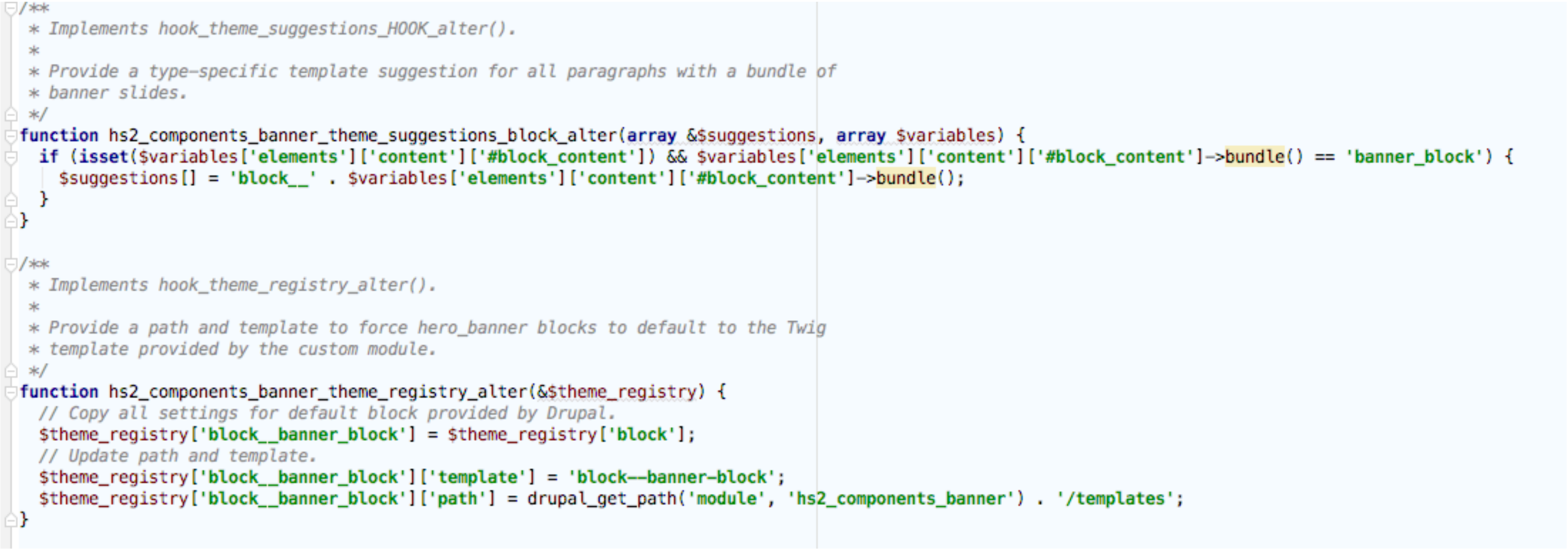
```
name: 'HS2 Components: Banner'
description: 'A full width page banner that can be a single item or multiple item slides.<br><br>Requir
type: module
core: 8.x
version: 8.x-3.0
package: 'HS2 Components'
dependencies:
  - block_content
  - entity_browser
  - entity_reference_revisions
  - field
  - field_group
  - file
  - hs2_components
  - image
  - link
  - link_attributes
  - node
  - options
  - paragraphs
```

BANNER .MODULE



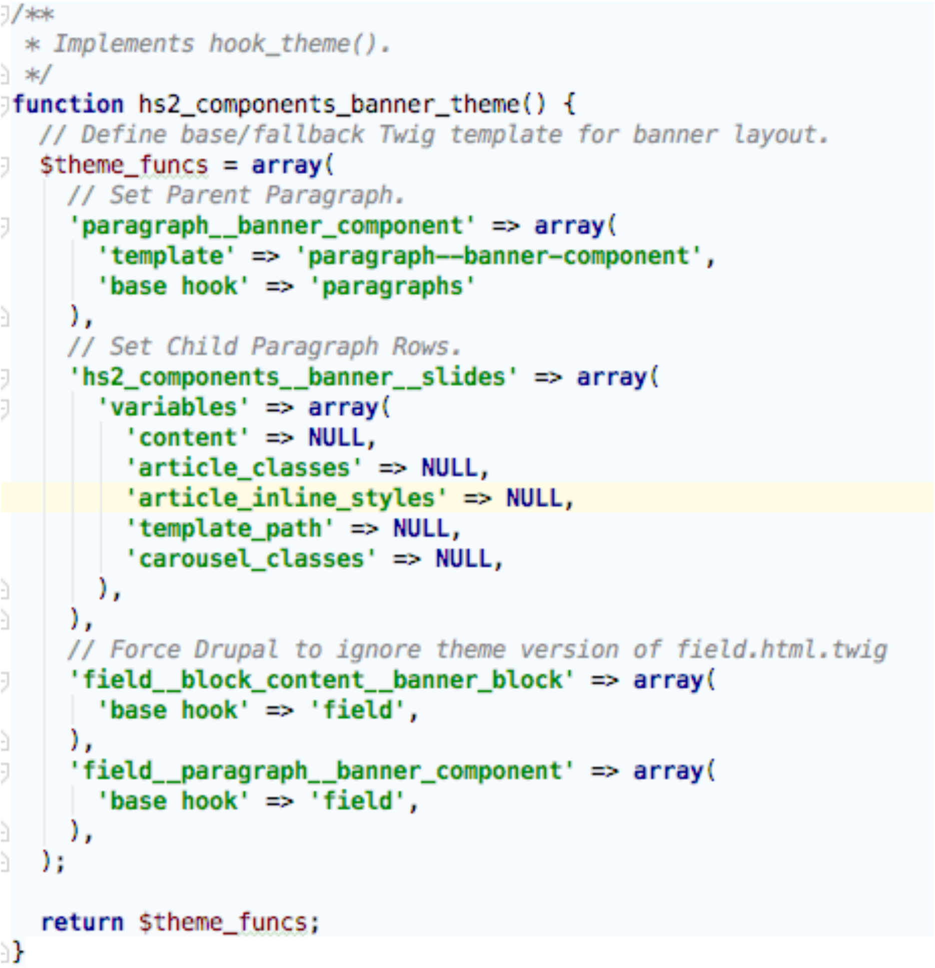
```php
/**
 * Implements hook_field_widget_WIDGET_TYPE_form_alter().
 *
 * Experimental Paragraphs Widget.
 *
 * @param $element
 * @param \Drupal\Core\Form\FormStateInterface $form_state
 * @param $context
 */
function hs2_components_banner_field_widget_paragraphs_form_alter(&$element, FormStateInterface $form_state, $context) {
  if ($element['#paragraph_type'] == 'banner_component') {
    $element['#attached']['library'][] = 'hs2_components_banner/hs2_components_banner_admin';
  }
}
```

BANNER .MODULE



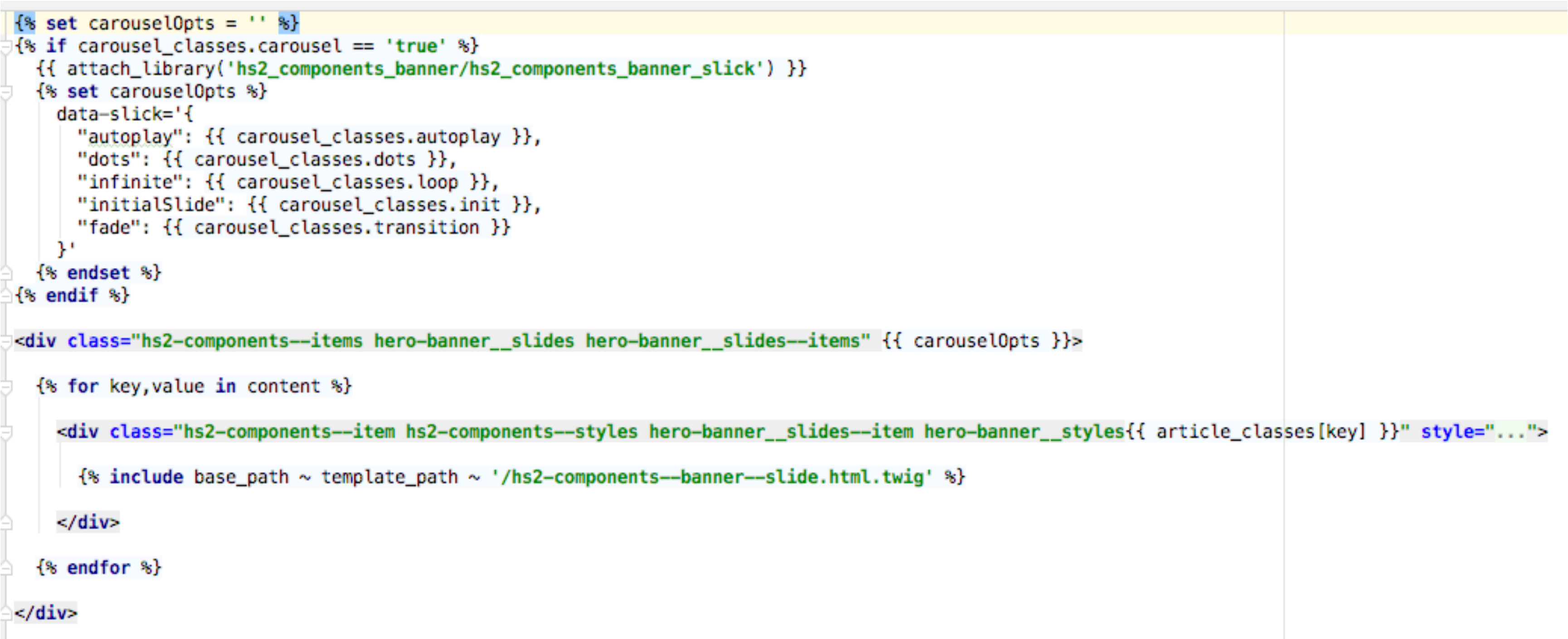
```
/**
 * Implements hook_theme_suggestions_HOOK_alter().
 *
 * Provide a type-specific template suggestion for all paragraphs with a bundle of
 * banner slides.
 */
function hs2_components_banner_theme_suggestions_block_alter(array &$suggestions, array $variables) {
  if (isset($variables['elements']['content']['#block_content']) && $variables['elements']['content']['#block_content']->bundle() == 'banner_block') {
    $suggestions[] = 'block__' . $variables['elements']['content']['#block_content']->bundle();
  }
}

/**
 * Implements hook_theme_registry_alter().
 *
 * Provide a path and template to force hero_banner blocks to default to the Twig
 * template provided by the custom module.
 */
function hs2_components_banner_theme_registry_alter(&$theme_registry) {
  // Copy all settings for default block provided by Drupal.
  $theme_registry['block__banner_block'] = $theme_registry['block'];
  // Update path and template.
  $theme_registry['block__banner_block']['template'] = 'block--banner-block';
  $theme_registry['block__banner_block']['path'] = drupal_get_path('module', 'hs2_components_banner') . '/templates';
}
```

BANNER .MODULE



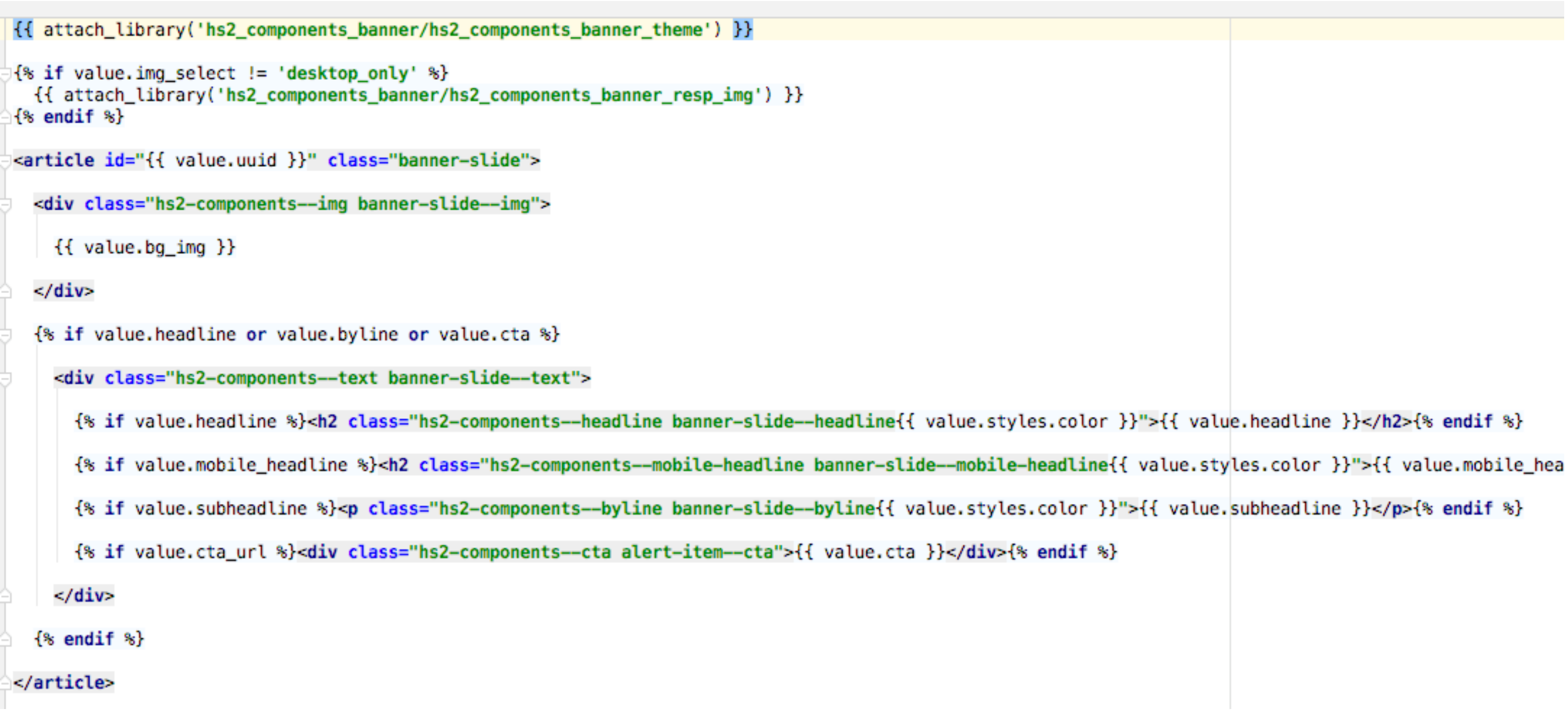
```php
/**
 * Implements hook_theme().
 */
function hs2_components_banner_theme() {
  // Define base/fallback Twig template for banner layout.
  $theme_funcs = array(
    // Set Parent Paragraph.
    'paragraph__banner_component' => array(
      'template' => 'paragraph--banner-component',
      'base hook' => 'paragraphs'
    ),
    // Set Child Paragraph Rows.
    'hs2_components__banner__slides' => array(
      'variables' => array(
        'content' => NULL,
        'article_classes' => NULL,
        'article_inline_styles' => NULL,
        'template_path' => NULL,
        'carousel_classes' => NULL,
      ),
    ),
    // Force Drupal to ignore theme version of field.html.twig
    'field__block_content__banner_block' => array(
      'base hook' => 'field',
    ),
    'field__paragraph__banner_component' => array(
      'base hook' => 'field',
    ),
  );

  return $theme_funcs;
}
```

BANNER SLIDES TEMPLATE



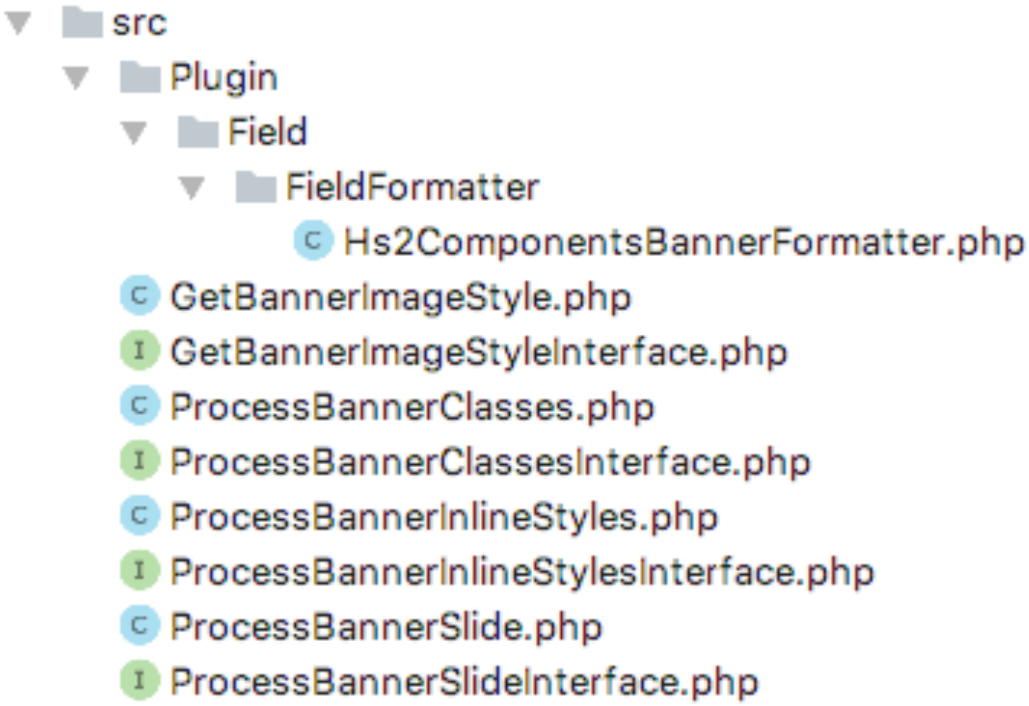
```
{% set carouselOpts = '' %}
{% if carousel_classes.carousel == 'true' %}
  {{ attach_library('hs2_components_banner/hs2_components_banner_slick') }}
  {% set carouselOpts %}
    data-slick='{
      "autoplay": {{ carousel_classes.autoplay }},
      "dots": {{ carousel_classes.dots }},
      "infinite": {{ carousel_classes.loop }},
      "initialSlide": {{ carousel_classes.init }},
      "fade": {{ carousel_classes.transition }}
    }'
  {% endset %}
{% endif %}

<div class="hs2-components--items hero-banner__slides hero-banner__slides--items" {{ carouselOpts }}>

  {% for key,value in content %}

    <div class="hs2-components--item hs2-components--styles hero-banner__slides--item hero-banner__styles{{ article_classes[key] }}" style="...">

      {% include base_path ~ template_path ~ '/hs2-components--banner--slide.html.twig' %}

    </div>

  {% endfor %}

</div>
```

BANNER SLIDE TEMPLATE



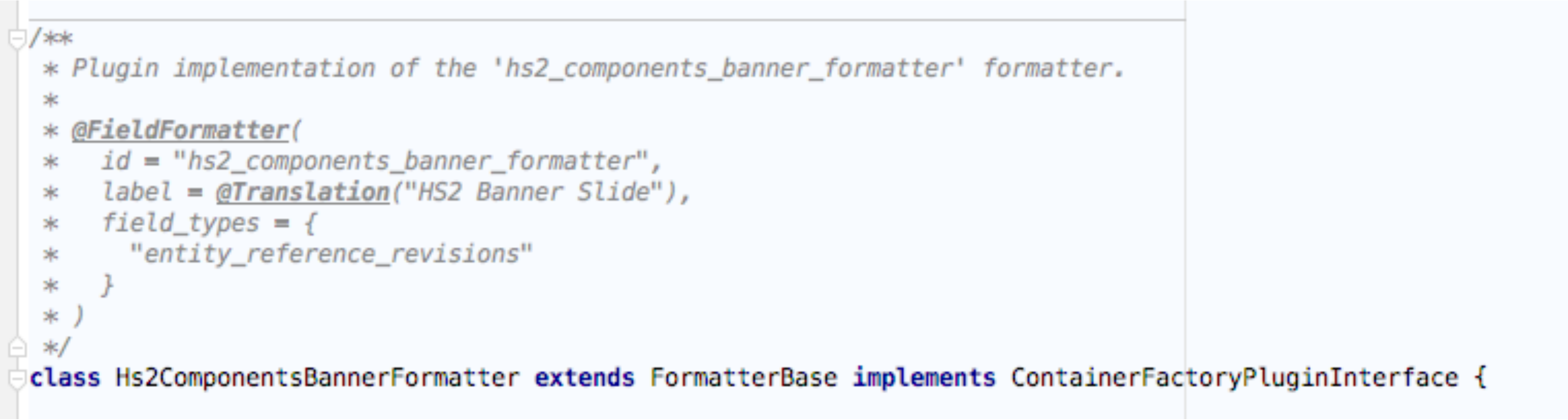
```
{{ attach_library('hs2_components_banner/hs2_components_banner_theme') }}

{% if value.img_select != 'desktop_only' %}
  {{ attach_library('hs2_components_banner/hs2_components_banner_resp_img') }}
{% endif %}

<article id="{{ value.uuid }}" class="banner-slide">

  <div class="hs2-components--img banner-slide--img">

    {{ value.bg_img }}

  </div>

  {% if value.headline or value.byline or value.cta %}

    <div class="hs2-components--text banner-slide--text">

      {% if value.headline %}<h2 class="hs2-components--headline banner-slide--headline{{ value.styles.color }}">{{ value.headline }}</h2>{% endif %}

      {% if value.mobile_headline %}<h2 class="hs2-components--mobile-headline banner-slide--mobile-headline{{ value.styles.color }}">{{ value.mobile_hea

      {% if value.subheadline %}<p class="hs2-components--byline banner-slide--byline{{ value.styles.color }}">{{ value.subheadline }}</p>{% endif %}

      {% if value.cta_url %}<div class="hs2-components--cta alert-item--cta">{{ value.cta }}</div>{% endif %}

    </div>

  {% endif %}

</article>
```

BANNER SRC DIRECTORY



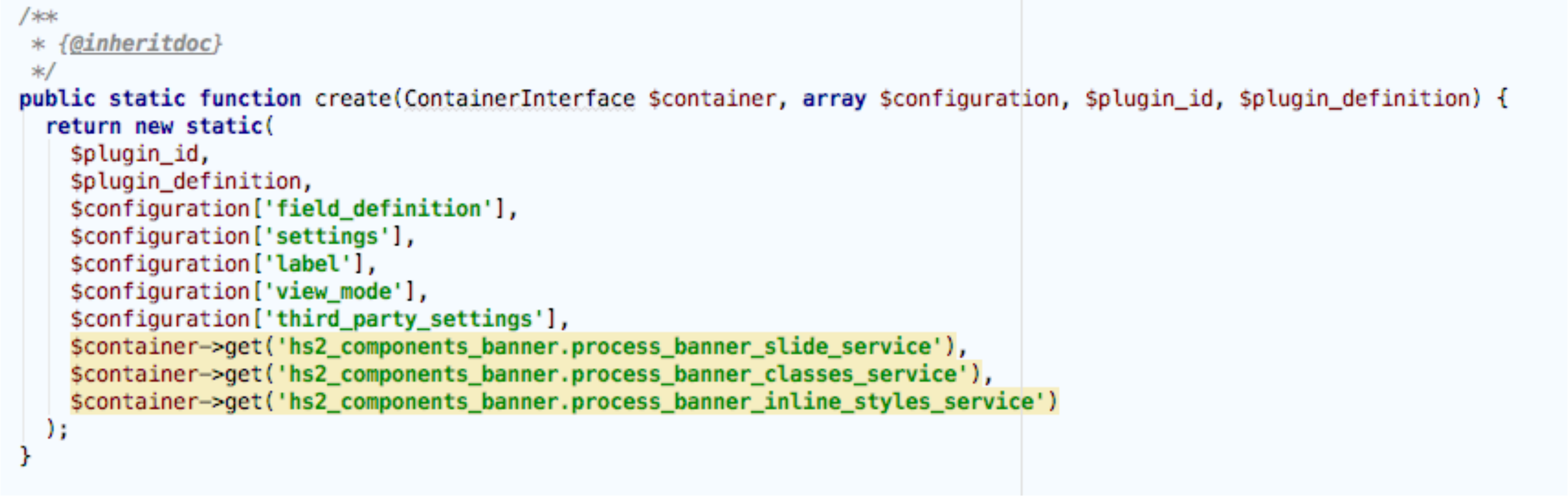
```
▼ src
    ▼ Plugin
        ▼ Field
            ▼ FieldFormatter
                C Hs2ComponentsBannerFormatter.php
    C GetBannerImageStyle.php
    I GetBannerImageStyleInterface.php
    C ProcessBannerClasses.php
    I ProcessBannerClassesInterface.php
    C ProcessBannerInlineStyles.php
    I ProcessBannerInlineStylesInterface.php
    C ProcessBannerSlide.php
    I ProcessBannerSlideInterface.php
```

BANNER CUSTOM FIELD FORMATTER



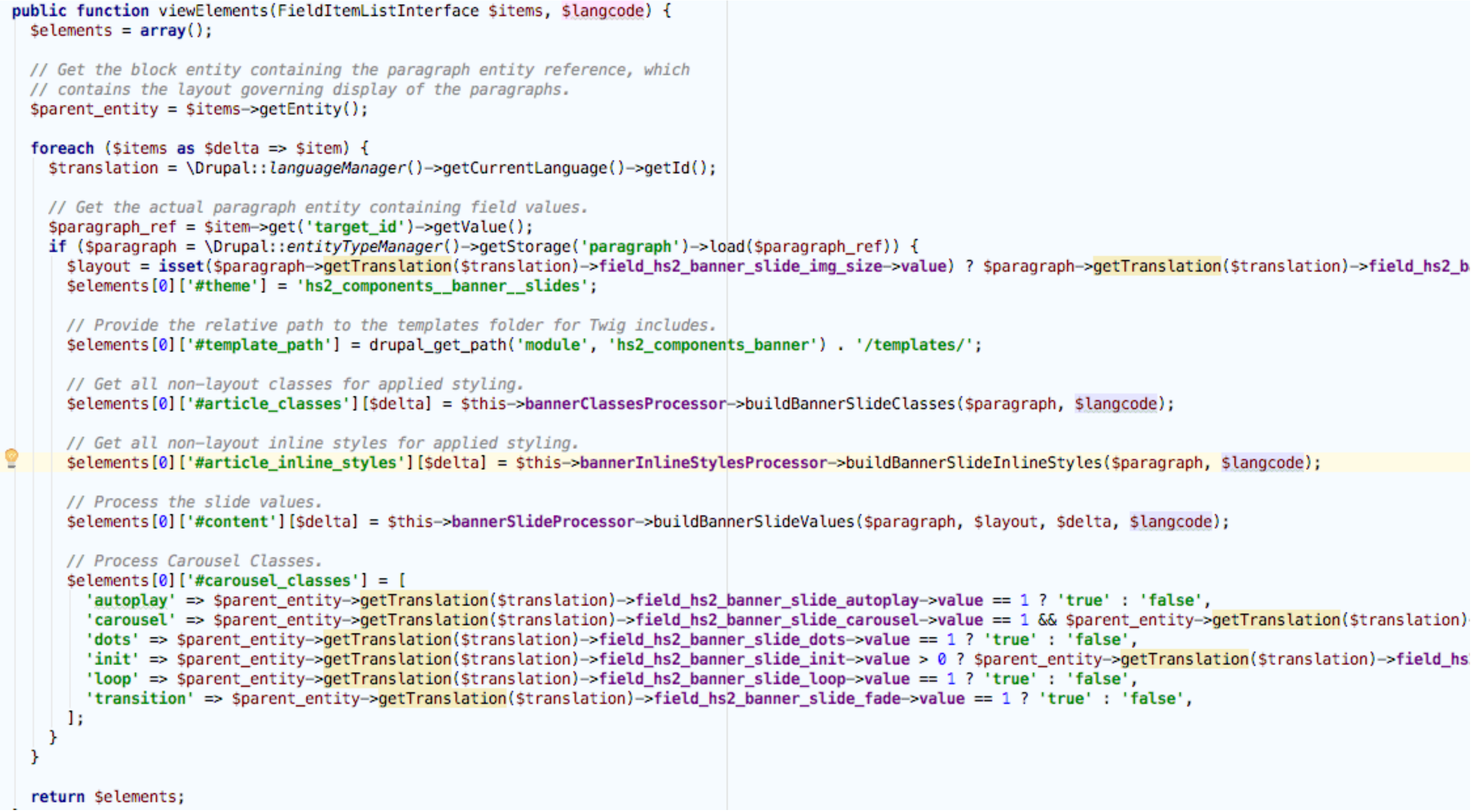
```
/**
 * Plugin implementation of the 'hs2_components_banner_formatter' formatter.
 *
 * @FieldFormatter(
 *   id = "hs2_components_banner_formatter",
 *   label = @Translation("HS2 Banner Slide"),
 *   field_types = {
 *     "entity_reference_revisions"
 *   }
 * )
 */
class Hs2ComponentsBannerFormatter extends FormatterBase implements ContainerFactoryPluginInterface {
```

BANNER CUSTOM FIELD FORMATTER



```
/**
 * {@inheritdoc}
 */
public static function create(ContainerInterface $container, array $configuration, $plugin_id, $plugin_definition) {
  return new static(
    $plugin_id,
    $plugin_definition,
    $configuration['field_definition'],
    $configuration['settings'],
    $configuration['label'],
    $configuration['view_mode'],
    $configuration['third_party_settings'],
    $container->get('hs2_components_banner.process_banner_slide_service'),
    $container->get('hs2_components_banner.process_banner_classes_service'),
    $container->get('hs2_components_banner.process_banner_inline_styles_service')
  );
}
```

BANNER CUSTOM FIELD FORMATTER

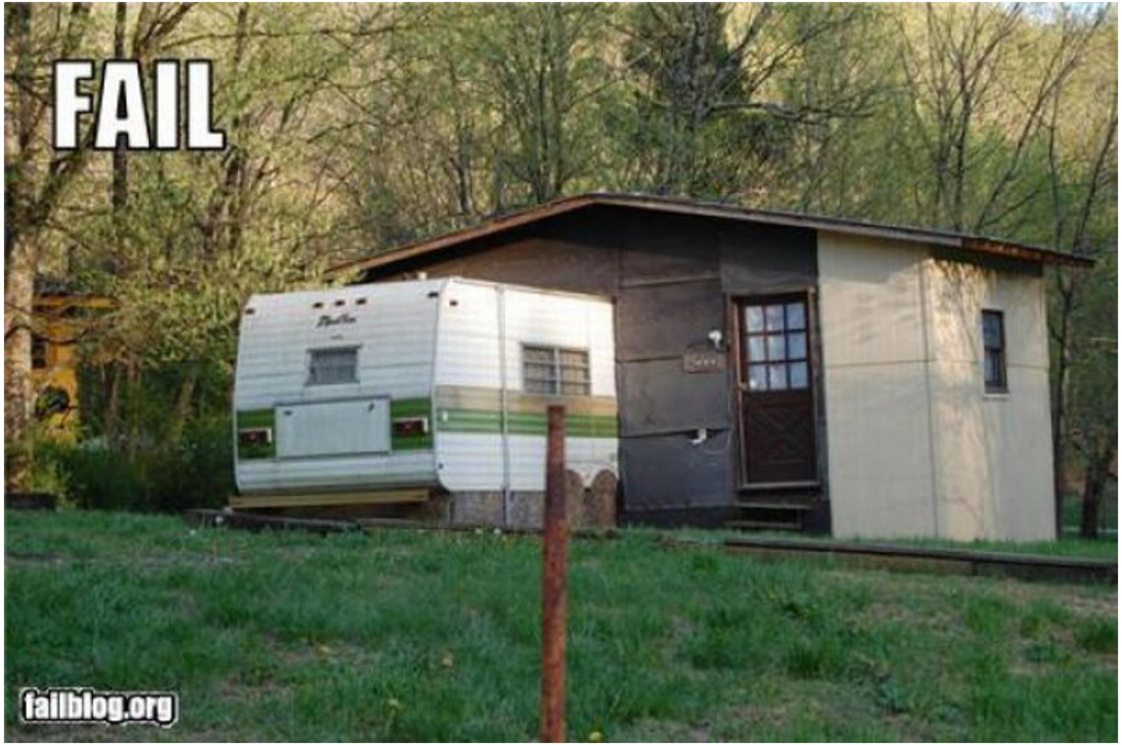


```php
public function viewElements(FieldItemListInterface $items, $langcode) {
  $elements = array();

  // Get the block entity containing the paragraph entity reference, which
  // contains the layout governing display of the paragraphs.
  $parent_entity = $items->getEntity();

  foreach ($items as $delta => $item) {
    $translation = \Drupal::languageManager()->getCurrentLanguage()->getId();

    // Get the actual paragraph entity containing field values.
    $paragraph_ref = $item->get('target_id')->getValue();
    if ($paragraph = \Drupal::entityTypeManager()->getStorage('paragraph')->load($paragraph_ref)) {
      $layout = isset($paragraph->getTranslation($translation)->field_hs2_banner_slide_img_size->value) ? $paragraph->getTranslation($translation)->field_hs2_b
      $elements[0]['#theme'] = 'hs2_components__banner__slides';

      // Provide the relative path to the templates folder for Twig includes.
      $elements[0]['#template_path'] = drupal_get_path('module', 'hs2_components_banner') . '/templates/';

      // Get all non-layout classes for applied styling.
      $elements[0]['#article_classes'][$delta] = $this->bannerClassesProcessor->buildBannerSlideClasses($paragraph, $langcode);

      // Get all non-layout inline styles for applied styling.
      $elements[0]['#article_inline_styles'][$delta] = $this->bannerInlineStylesProcessor->buildBannerSlideInlineStyles($paragraph, $langcode);

      // Process the slide values.
      $elements[0]['#content'][$delta] = $this->bannerSlideProcessor->buildBannerSlideValues($paragraph, $layout, $delta, $langcode);

      // Process Carousel Classes.
      $elements[0]['#carousel_classes'] = [
        'autoplay' => $parent_entity->getTranslation($translation)->field_hs2_banner_slide_autoplay->value == 1 ? 'true' : 'false',
        'carousel' => $parent_entity->getTranslation($translation)->field_hs2_banner_slide_carousel->value == 1 && $parent_entity->getTranslation($translation)
        'dots' => $parent_entity->getTranslation($translation)->field_hs2_banner_slide_dots->value == 1 ? 'true' : 'false',
        'init' => $parent_entity->getTranslation($translation)->field_hs2_banner_slide_init->value > 0 ? $parent_entity->getTranslation($translation)->field_hs
        'loop' => $parent_entity->getTranslation($translation)->field_hs2_banner_slide_loop->value == 1 ? 'true' : 'false',
        'transition' => $parent_entity->getTranslation($translation)->field_hs2_banner_slide_fade->value == 1 ? 'true' : 'false',
      ];
    }
  }

  return $elements;
```

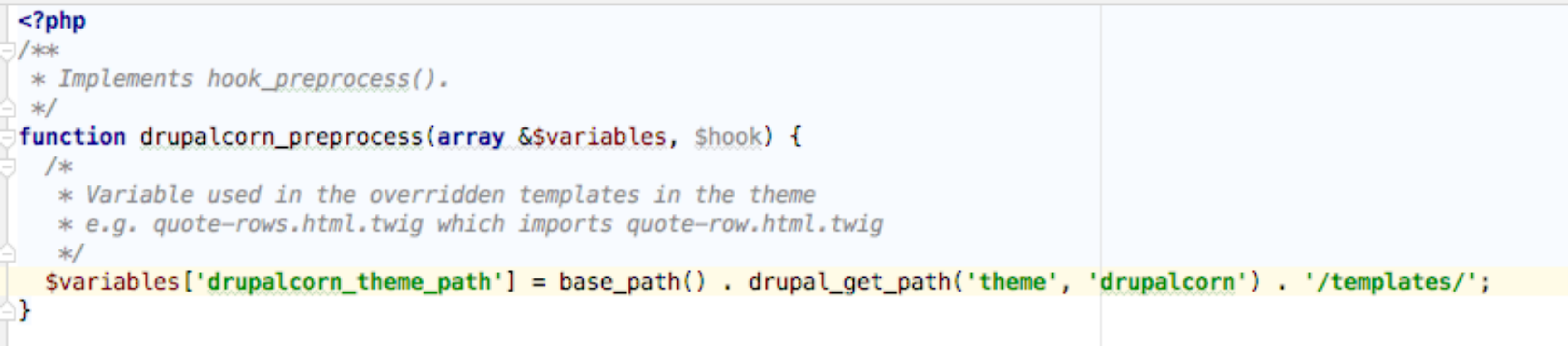
THINGS TO THINK ABOUT

ADMIN UI – COCKPIT OR BUTTON

EXTENDING YOUR LEGOS

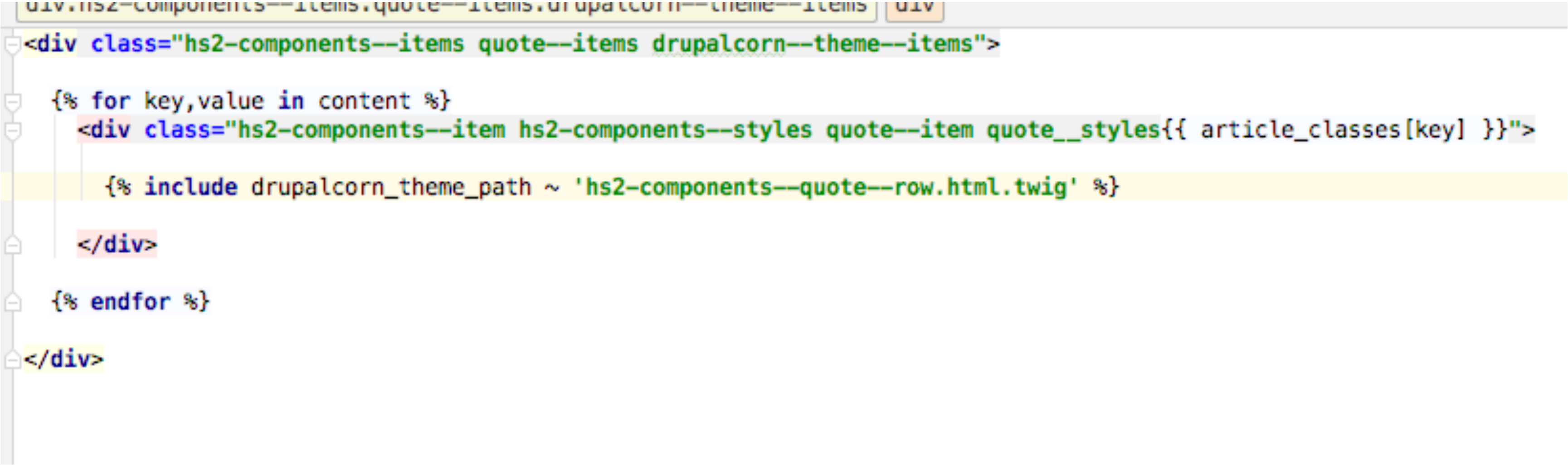


EXAMPLE OF EXTENDING WITH A THEME



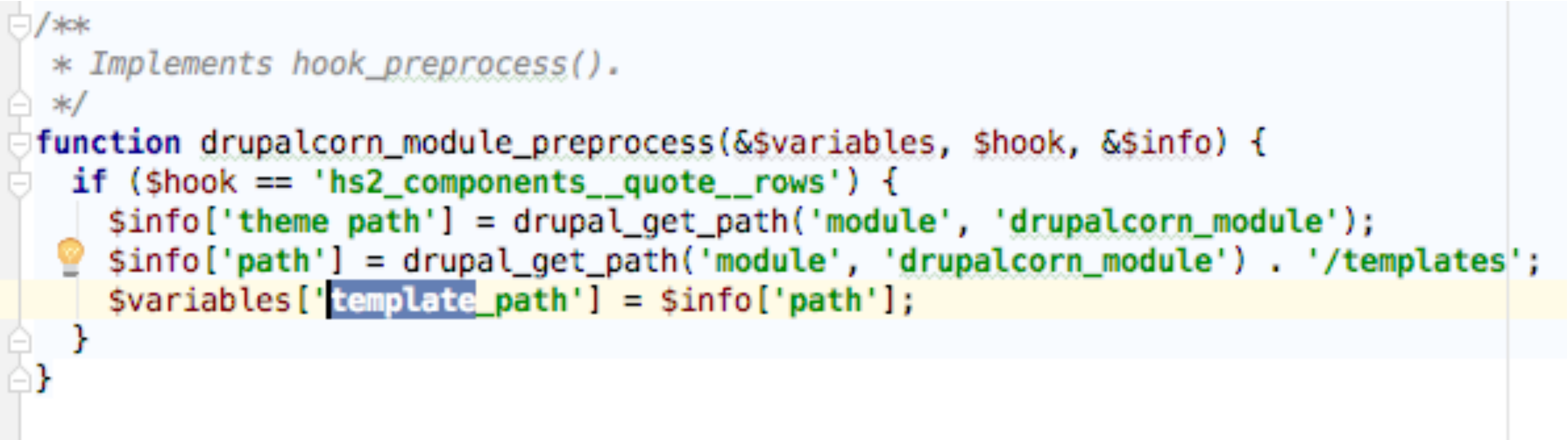
```php
<?php
/**
 * Implements hook_preprocess().
 */
function drupalcorn_preprocess(array &$variables, $hook) {
  /*
   * Variable used in the overridden templates in the theme
   * e.g. quote-rows.html.twig which imports quote-row.html.twig
   */
  $variables['drupalcorn_theme_path'] = base_path() . drupal_get_path('theme', 'drupalcorn') . '/templates/';
}
```

EXAMPLE OF EXTENDING WITH A THEME


div.hs2-components--items.quote--items.drupalcorn--theme--items
div

```
<div class="hs2-components--items quote--items drupalcorn--theme--items">

  {% for key,value in content %}
    <div class="hs2-components--item hs2-components--styles quote--item quote__styles{{ article_classes[key] }}">

      {% include drupalcorn_theme_path ~ 'hs2-components--quote--row.html.twig' %}

    </div>

  {% endfor %}

</div>
```

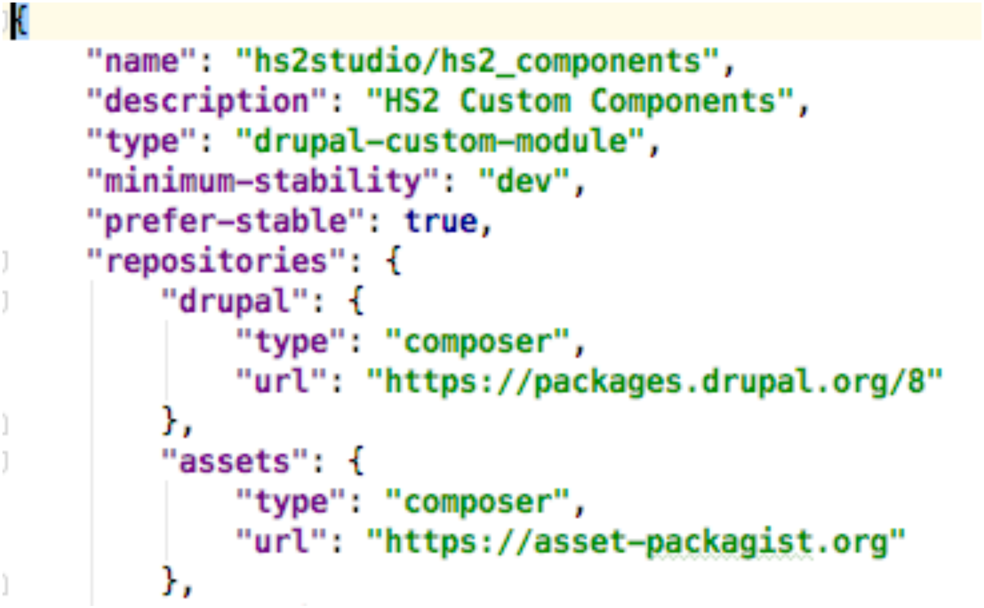
EXTENDING A TEMPLATE WITH A MODULE



```
/**
 * Implements hook_preprocess().
 */
function drupalcorn_module_preprocess(&$variables, $hook, &$info) {
  if ($hook == 'hs2_components__quote__rows') {
    $info['theme path'] = drupal_get_path('module', 'drupalcorn_module');
    $info['path'] = drupal_get_path('module', 'drupalcorn_module') . '/templates';
    $variables['template_path'] = $info['path'];
  }
}
```

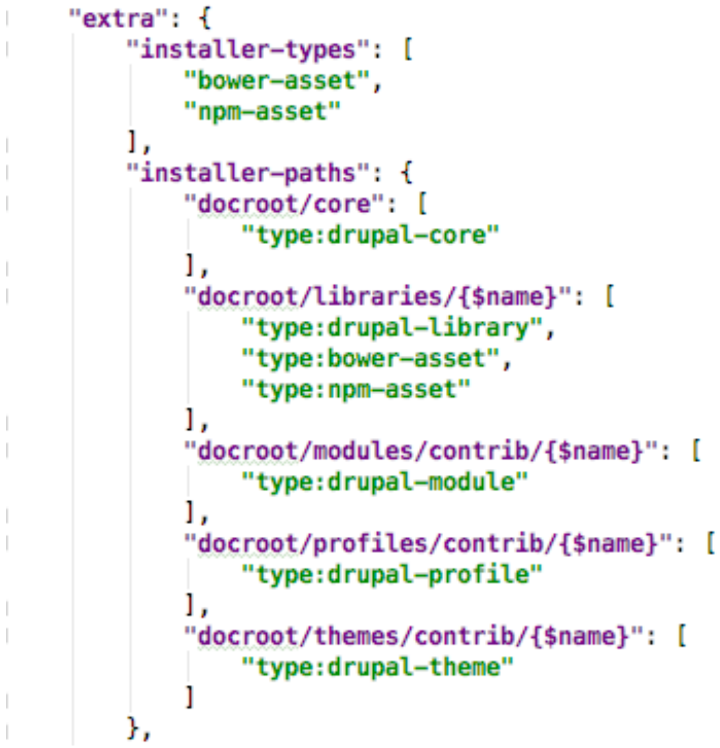
COMPOSER

COMPOSER – COMPONENTS PROJECT



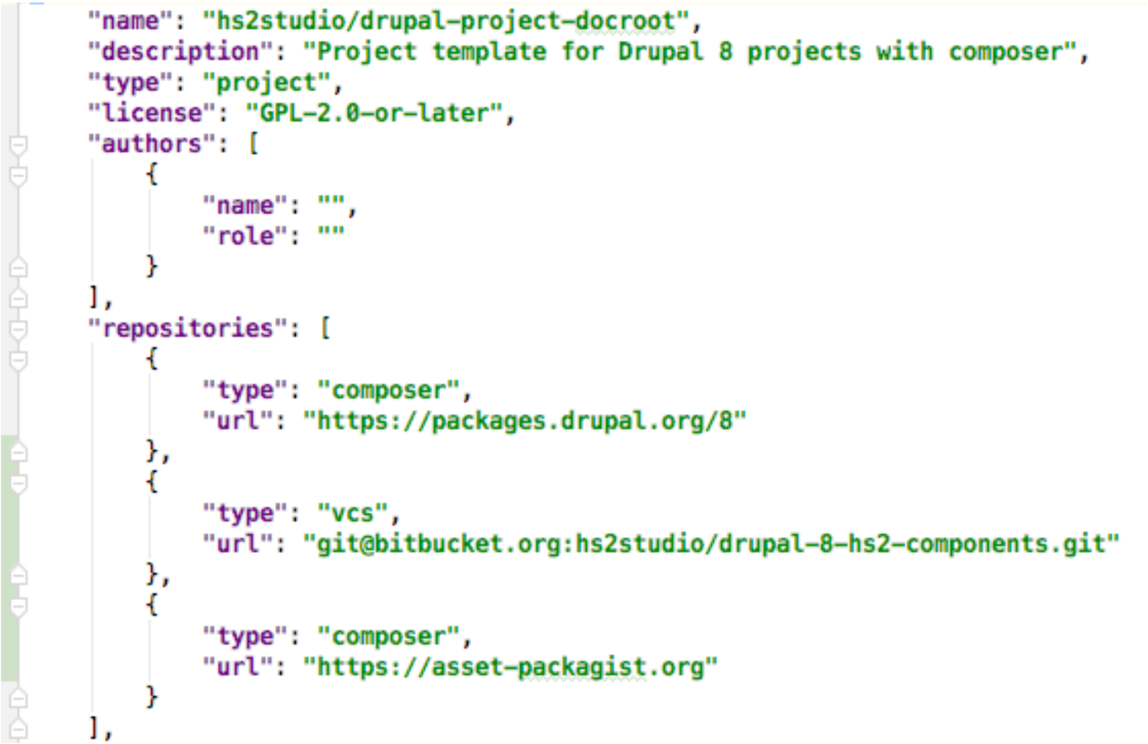
```
{
    "name": "hs2studio/hs2_components",
    "description": "HS2 Custom Components",
    "type": "drupal-custom-module",
    "minimum-stability": "dev",
    "prefer-stable": true,
    "repositories": {
        "drupal": {
            "type": "composer",
            "url": "https://packages.drupal.org/8"
        },
        "assets": {
            "type": "composer",
            "url": "https://asset-packagist.org"
        },
```

COMPOSER – COMPONENTS PROJECT



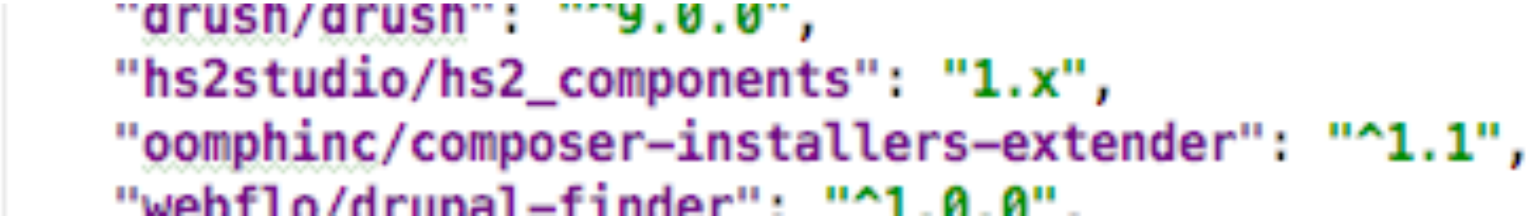
```
    "extra": {
        "installer-types": [
            "bower-asset",
            "npm-asset"
        ],
        "installer-paths": {
            "docroot/core": [
                "type:drupal-core"
            ],
            "docroot/libraries/{$name}": [
                "type:drupal-library",
                "type:bower-asset",
                "type:npm-asset"
            ],
            "docroot/modules/contrib/{$name}": [
                "type:drupal-module"
            ],
            "docroot/profiles/contrib/{$name}": [
                "type:drupal-profile"
            ],
            "docroot/themes/contrib/{$name}": [
                "type:drupal-theme"
            ]
        },
```

USING THE COMPONENTS VIA COMPOSER



```
    "name": "hs2studio/drupal-project-docroot",
    "description": "Project template for Drupal 8 projects with composer",
    "type": "project",
    "license": "GPL-2.0-or-later",
    "authors": [
        {
            "name": "",
            "role": ""
        }
    ],
    "repositories": [
        {
            "type": "composer",
            "url": "https://packages.drupal.org/8"
        },
        {
            "type": "vcs",
            "url": "git@bitbucket.org:hs2studio/drupal-8-hs2-components.git"
        },
        {
            "type": "composer",
            "url": "https://asset-packagist.org"
        }
    ],
```

INSTALLING LIBRARIES NOT IN VENDOR



```
    "drush/drush": "~9.0.0",
    "hs2studio/hs2_components": "1.x",
    "oomphinc/composer-installers-extender": "^1.1",
    "webflo/drupal-finder": "^1.0.0",
```

Summary

WHY BUILD YOUR LEGOS?

HOW DID HS2 BUILD ITS LEGOS?

WHAT FACTORS SHOULD BE CONSIDERED?

QUESTIONS?

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Director of Drupal Development
HS2 Solutions, Inc.

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@cgreaten
d.o: cgreatem

RESOURCES

- Composer Installers Extender -- https://github.com/oomphinc/composer-installers-extender
- Paragraph Bundle Feature Request -- https://www.drupal.org/project/paragraphs/issues/2868155
- Composer Repositories -- https://getcomposer.org/doc/05-repositories.md
- Why can’t Composer load repositories recursively? -- https://getcomposer.org/doc/faqs/why-can't-composer-load-repositories-recursively.md
- Using Drupal Paragraphs with a Component-based Approach -- https://www.hs2solutions.com/blog/using-drupal-paragraphs-component-based-approach