

Ctools Plugins Demystified

Or

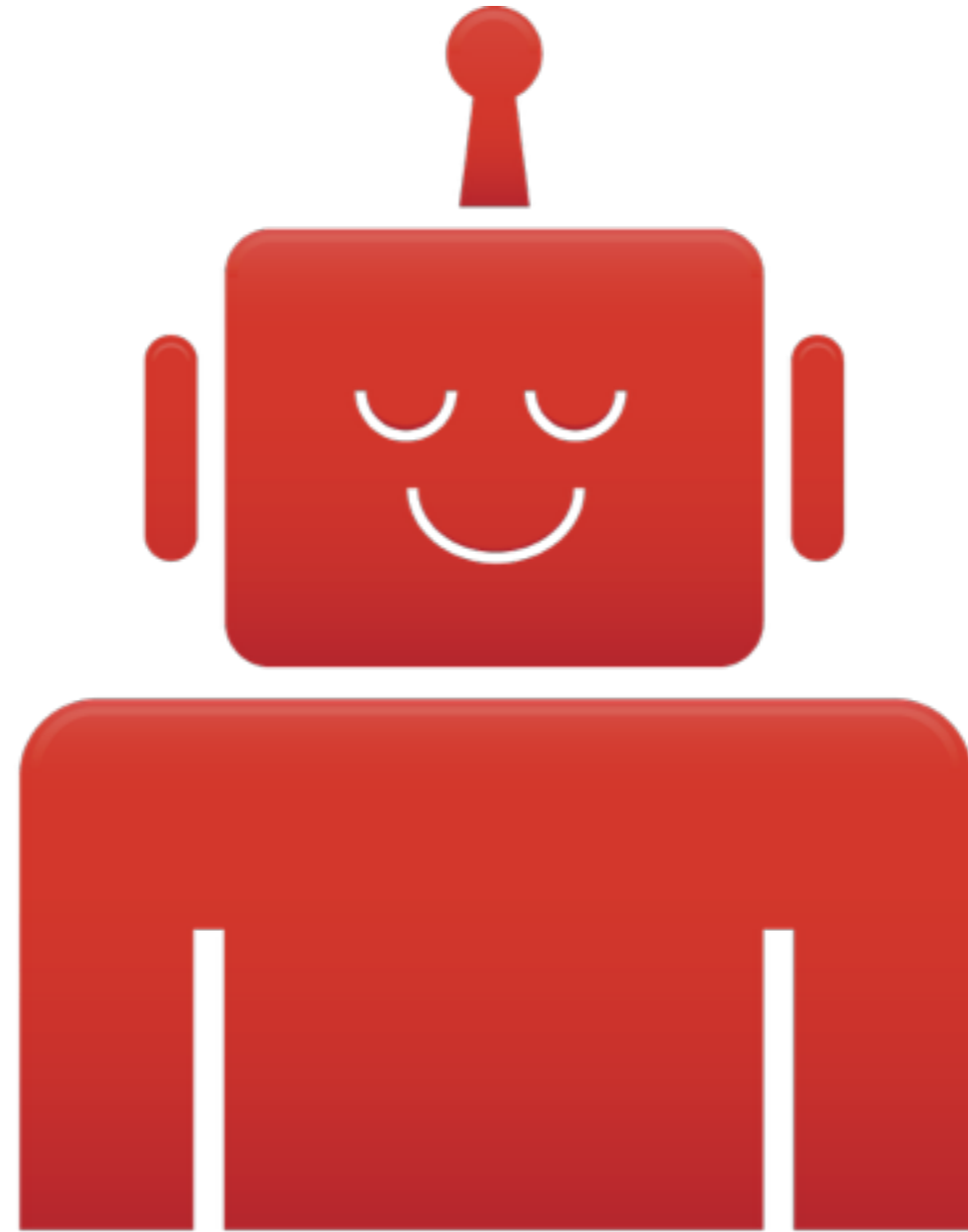
**How I learned to stop worrying and
be almost okay with using panels.**

**Matt Kleve
@vordude**

Hi. I'm Matt.



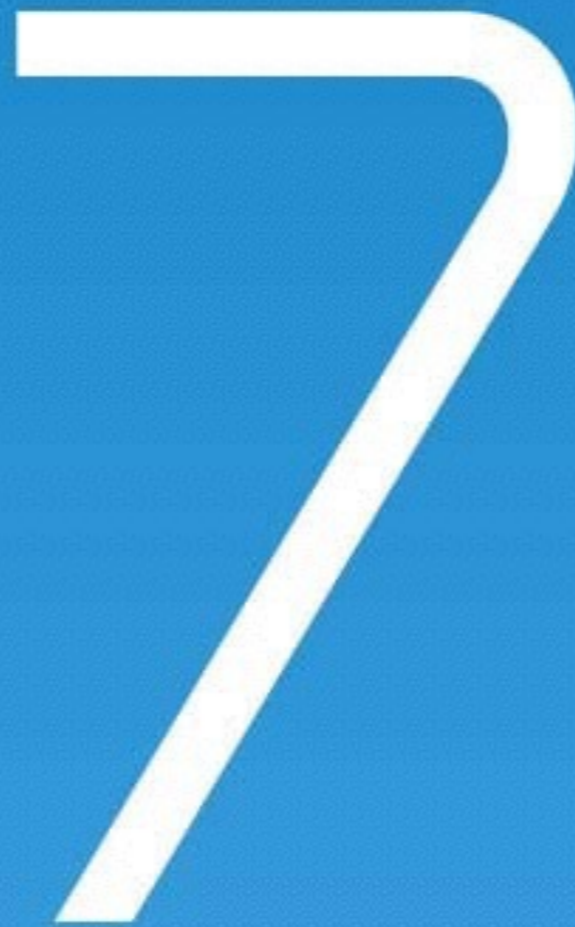
- 8 Years of Drupal
- 5 Years as a Senior Developer
Lullabot
- Tire Size 205/65 R15
- (Former) Panels Hater
- Not a Panels Lover



LullabotTM

drupalize  me

Drupal™



Making internets since January 2011.

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Chaos tool suite (ctools)

[View](#)
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[Automated Testing](#)

Posted by [merlinofchaos](#) on *December 5, 2008 at 7:37pm*

This suite is primarily a set of APIs and tools to improve the developer experience. It also contains a module called the Page Manager whose job is to manage pages. In particular it manages panel pages, but as it grows it will be able to manage far more than just Panels.

For the moment, it includes the following tools:

- Plugins -- tools to make it easy for modules to let other modules implement plugins from .inc files.
- Exportables -- tools to make it easier for modules to have objects that live in database or live in code, such as 'default views'.
- AJAX responder -- tools to make it easier for the server to handle AJAX requests and tell the client what to do with them.
- Form tools -- tools to make it easier for forms to deal with AJAX.
- Object caching -- tool to make it easier to edit an object across multiple page requests and cache the editing work.
- Contexts -- the notion of wrapping objects in a unified wrapper and providing an API to create and accept these contexts as input.
- Modal dialog -- tool to make it simple to put a form in a modal dialog.
- Dependent -- a simple form widget to make form items appear and disappear based upon the selections in another item.
- Content -- pluggable content types used as panes in Panels and other modules like Dashboard.
- Form wizard -- an API to make multi-step forms much easier.
- CSS tools -- tools to cache and sanitize CSS easily to make user-input CSS safe.

Maintainers for Chaos tool suite (ctools)

[japerry](#) – 32 commits
last: 3 days ago, first: 1 year ago

[tim.plunkett](#) – 42 commits
last: 3 months ago, first: 3 years ago

[dawehner](#) – 14 commits
last: 3 months ago, first: 3 years ago

[EclipseGc](#) – 33 commits
last: 4 months ago, first: 4 years ago

[merlinofchaos](#) – 1230 commits
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Issues for Chaos tool suite (ctools)





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Summary	Variants » Articles » Content
Variants	Variant operations
Articles	Add content items and change their location with a drag and drop interface.
Summary	▼ Display settings
General	Title type
Selection rules	Manually set ▼
Contexts	Title
Layout	<input type="text" value="%node:title"/>
Content	The title of this panel. If left blank, a default title may be used. If you want the title actually to be blank, change the "Title type" dropdown to use substitutions in this title.
Preview	

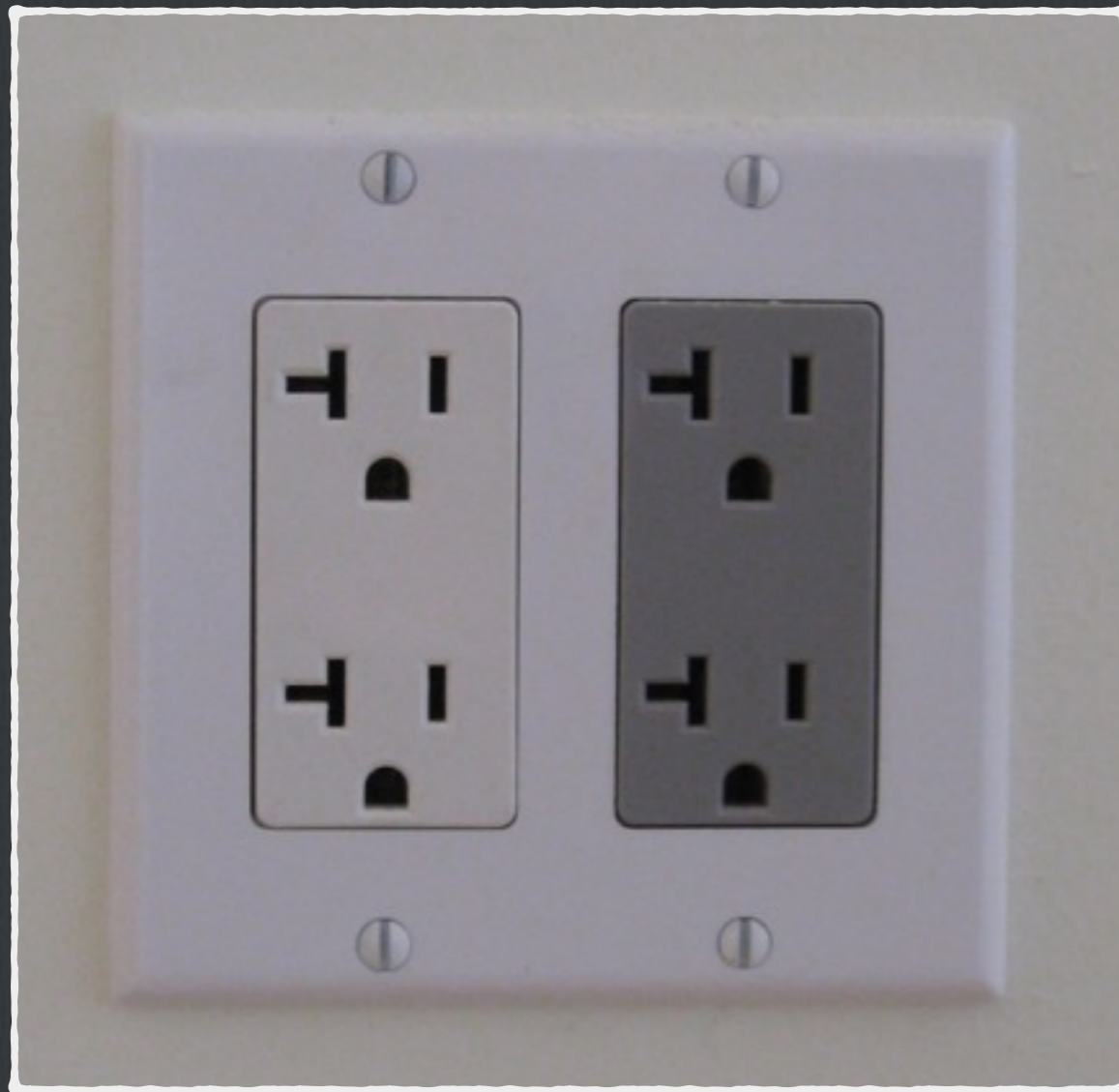
► **SUBSTITUTIONS**

	Top	
	Left side	
	"Node being viewed" Body	"Node being viewed" Image
	► node:body	► node:field image
		Bottom

Update Update and save Update

- Disable this pane
- Settings
- CSS properties
- Style
 - No style
 - Change
- Visibility rules
 - No rules
 - Add new rule
 - Settings

Plugins!

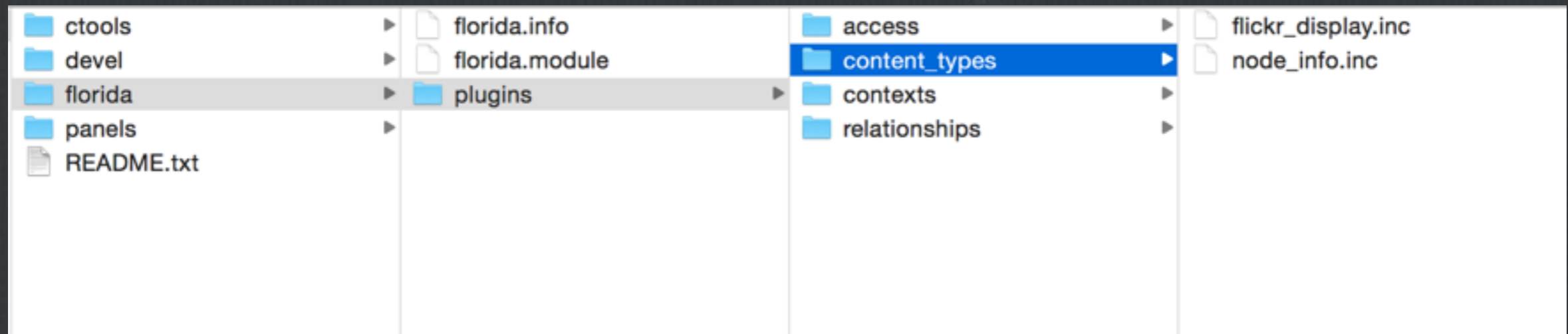


- Individual `.inc` file
- Including an array of configuration
- Functions for functionality
- For one encapsulated

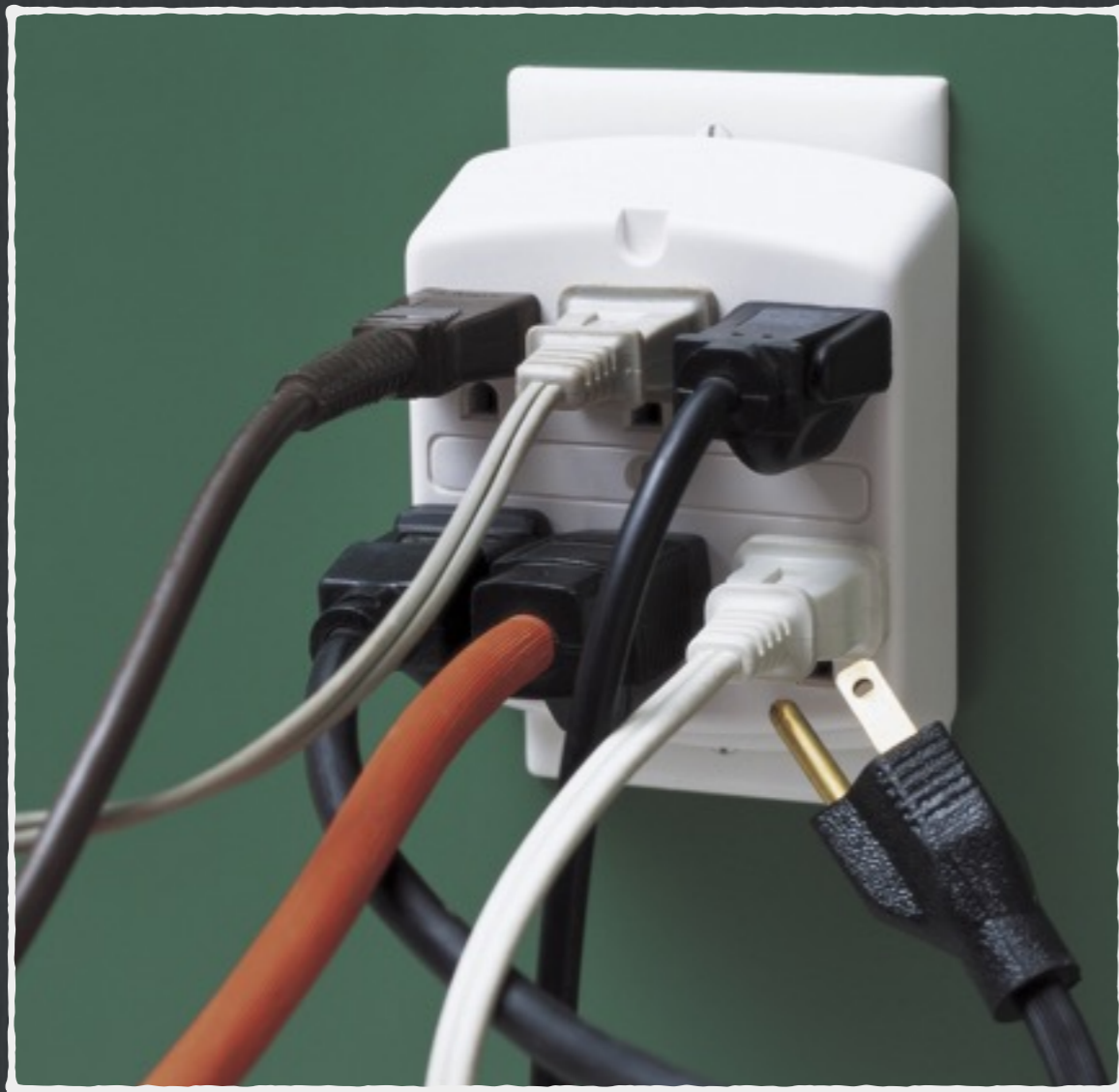
Plugins!

```
/**
 * Implements hook_ctools_plugin_directory().
 */
function florida_ctools_plugin_directory($module, $plugin) {
  if ($module == 'ctools' && !empty($plugin)) {
    return "plugins/$plugin";
  }
}
```


Plugins!



Content Type Plugins



- A block (More or less)
- Easier access to arguments

Content Type Plugins!

```
$plugin = array(
    'title' => t('Demo Plugin'),
    'description' => t('An Easy Content Type Plugin.'),
    'category' => array(t('Super Sweet Content'), 0),
    'edit form' => 'florida_ct_demo_form',
    'render callback' => 'florida_ct_demo_render',
);

/**
 * Edit form.
 */
function florida_ct_demo_form($form, &$form_state) {
    return $form;
}

/**
 * Render callback.
 */
function florida_ct_demo_render($subtype, $conf, $args, $context) {
    $block = new stdClass();
    $block->title = t('Demo content type plugin');
    $block->content = t('Hello World');
    return $block;
}
```


Access Plugins



- A place for some kind of restrictive logic to happen
- Returns TRUE/FALSE

Access Plugins!

```
$plugin = array(
    'title' => t('URL: Query string "dev"'),
    'description' => t('Controls access by a URL query string for developer access.'),
    'callback' => 'florida_dev_query_access_check',
    'settings form' => 'florida_dev_query_access_check_settings',
    'summary' => 'florida_dev_query_access_check_summary',
);

/**
 * Access Plugin Callback
 */
function florida_dev_query_access_check($conf, $context) {
    global $user;
    // Authenticated users will only be able to see our panel.
    if ($user->uid > 0) {
        // Adding ?dev=1 to the query string will allow access to our panel.
        if (isset($_GET['dev']) && $_GET['dev'] == '1') {
            return TRUE;
        }
    }
    return FALSE;
}

/**
 * Settings form for Access Plugin.
 */
function florida_dev_query_access_check_settings($form, &$form_state, $conf) {
    return $form;
}

/**
 * Provide a summary description for the 'dev_query' access plugin.
 */
function florida_dev_query_access_check_summary($conf, $context) {
    return t('Restrict access to only authenticated users who add ?dev=1 to the url.');
```

Live Demonstration



Image Source: <https://www.flickr.com/photos/excelglen/3298761018>

But Wait, There's More.



Image Source: <https://www.flickr.com/photos/alinssite/4396586200>

Contexts Plugins



- Objects of `StdClass()` aren't very descriptive
- Wrap your custom data in a standardized "Context" Object
- Then it can be dealt with in a standard way

Relationships Plugins



- Using a existing context
- “Do Stuff”
- Return a different context
- Think “Database JOIN”

More Demo!



Image Source: <https://www.flickr.com/photos/wallyhartshorn/2490400427>

Wait...Is this Safe?



Image Source: <https://www.flickr.com/photos/slworking/2218655624/>

Ctools Plugins

Individual files with individualized functionality.

- Content Type
- Access
- Context
- Relationship



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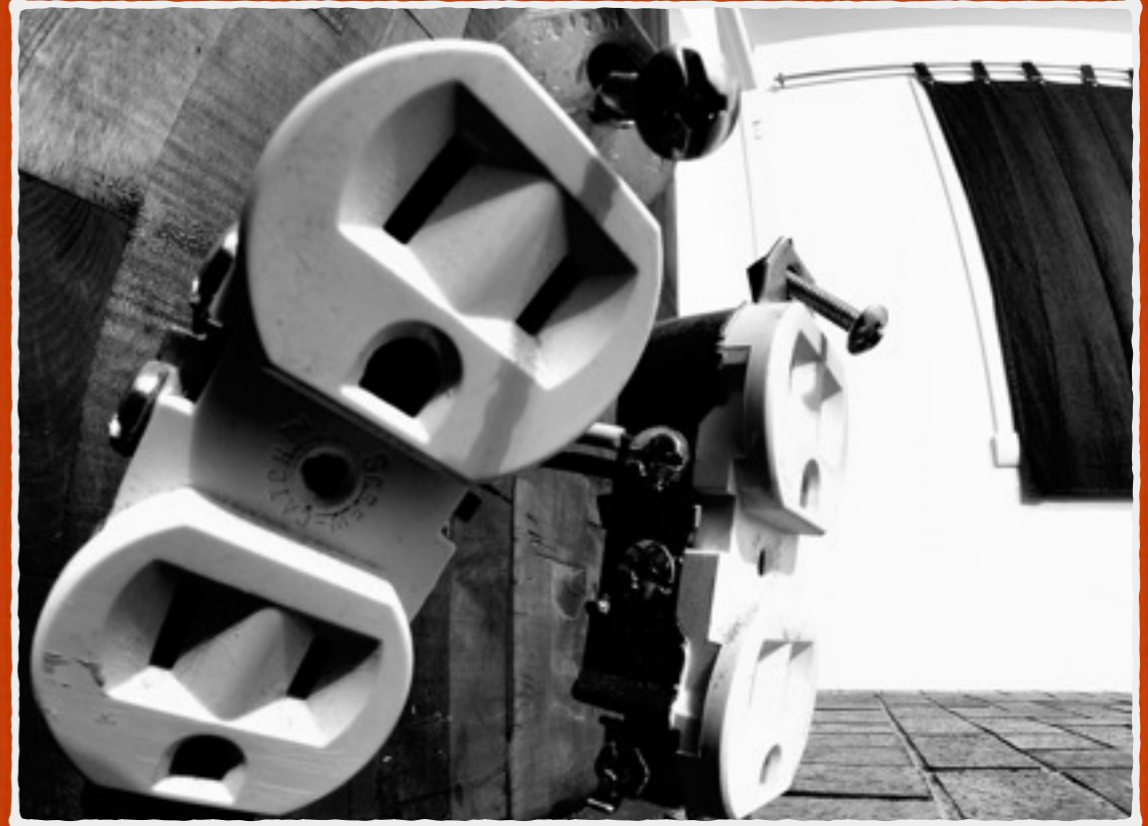


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A.C.

QUESTION
EVERYTHING

TEASEF
TLW