

ARCHIVING AND VISUAL REGRESSION USING DRUPAL 8

Texas Camp – June 2018

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Our Problems

- ▶ What was the content of some particular page on June 19?
- ▶ What did that page look like on October 17?
- ▶ When did some bug get introduced?
- ▶ How will these new code/config changes affect other parts of our website?
- ▶ How will the migration from Drupal 7 to Drupal 8 impact our website visually?

Our Solution

- ▶ **Web Page Archive Module**

- https://www.drupal.org/project/issues/web_page_archive

- ▶ **Project Maintainers**

- David Stinemetze - @WidgetsBurritos
- David Porter - @bighappyface
- Paul Maddern - @pobster

Module Overview

- ▶ The Web Page Archive module allows you to use Drupal to perform and compare periodic snapshots on local and remote websites based on a list of URLs or XML sitemaps.
- ▶ This means snapshots can be captured on any site.
 - Not just your current Drupal instance.
 - Not just Drupal-based websites.
 - Not just sites you host.
 - Not just sites you own (but be nice!)
- ▶ **Requirements**
 - Drupal 8.3+
 - PHP 7.0+
 - Must be installed via composer
 - Some features have additional dependencies

Why Build This In Drupal?

- Learn Drupal 8
- Ease-of-use for non technical users
- Drupal 8's plugin ecosystem makes it easy to support additional use cases
- Give back to the Drupal community

Capture Utilities

- ▶ Drupal plugins responsible for performing different types of captures
- ▶ Use annotation-based plugin discovery
- ▶ Configurable per instance

Screenshot Capture Utility

- ▶ **What it does:**

- Captures screenshot of specified URL

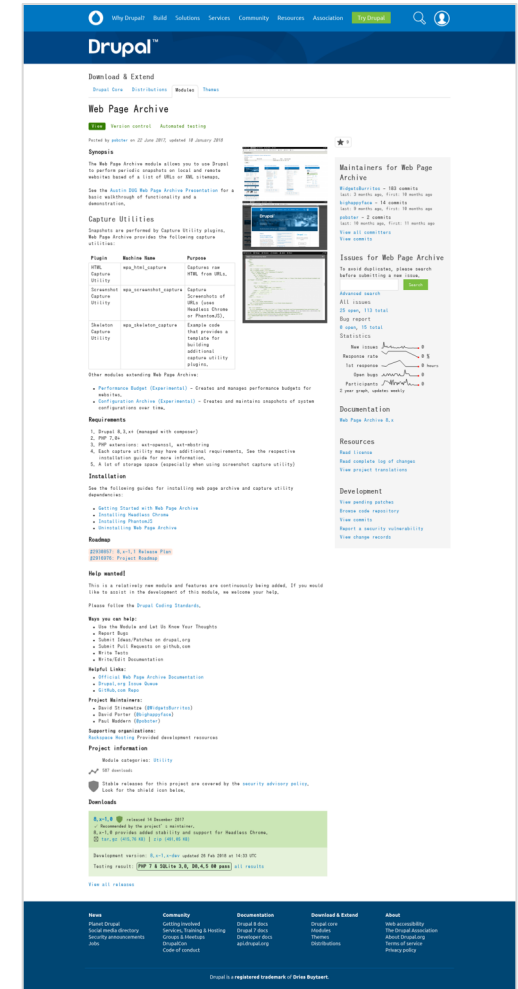
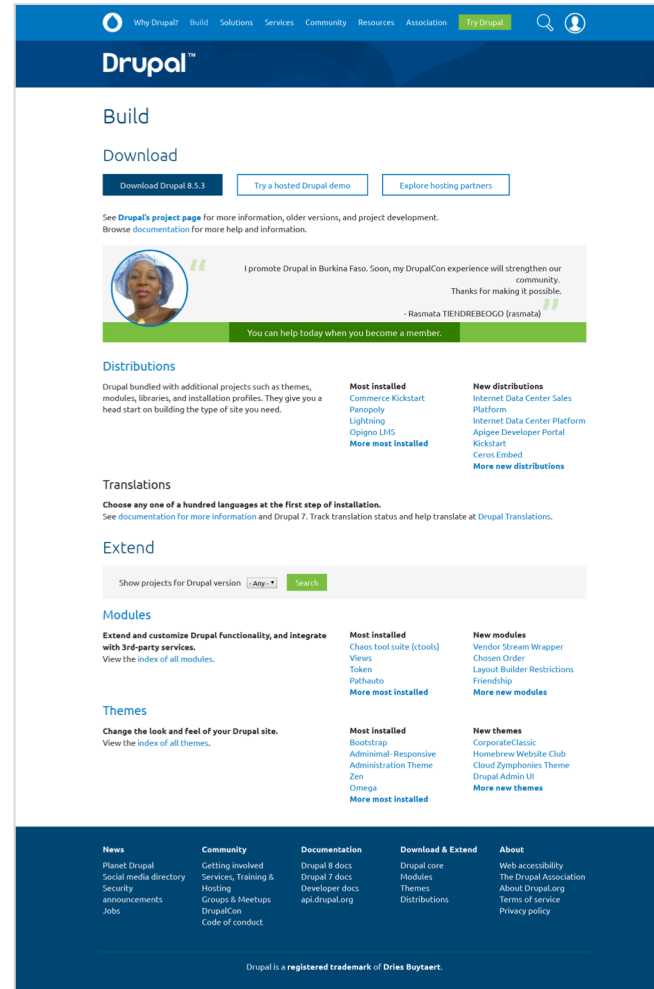
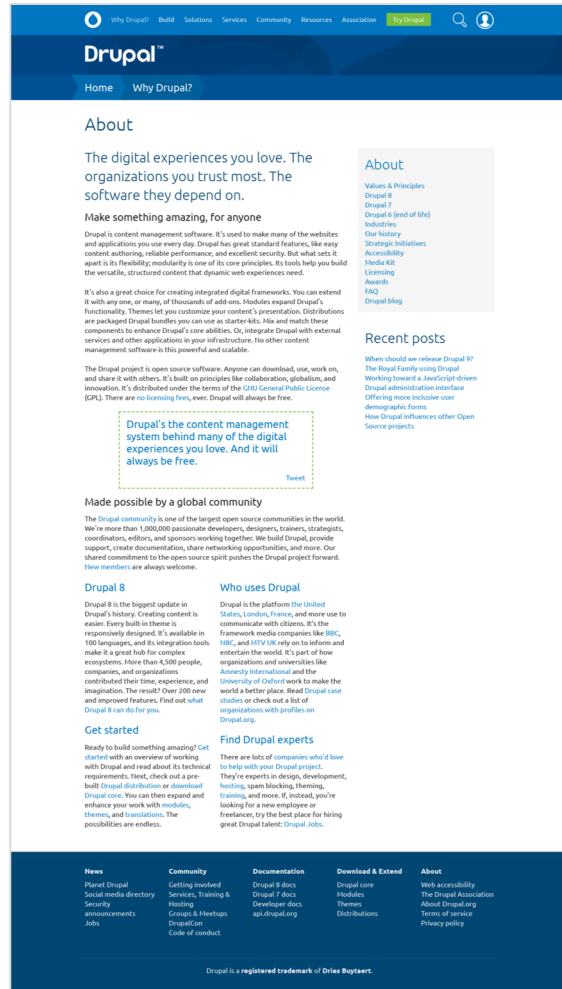
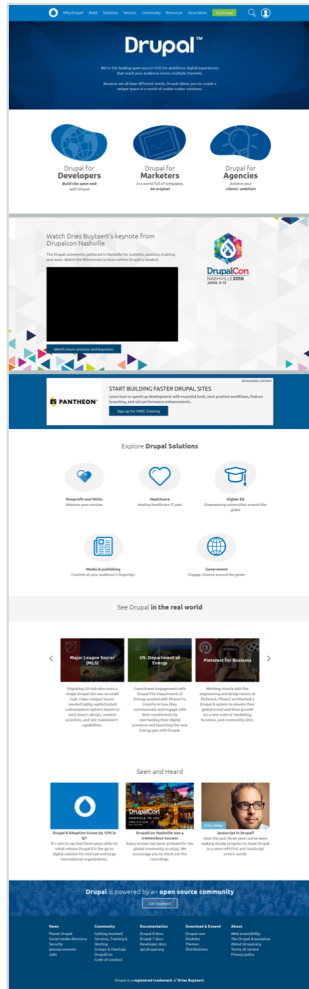
- ▶ **How it works:**

- Uses either Headless Chrome or PhantomJS to capture screenshots
- Can capture specific widths (e.g. Mobile vs Desktop)

- ▶ **Where it lives:**

- *wpa_screenshot_capture* submodule

Screenshot Examples



HTML Capture Utility

- ▶ **What it does:**

- Captures raw HTML of specified URL.

- ▶ **How it works:**

- Uses Guzzle, which is part of Drupal Core, to capture raw HTML.

- ▶ **Where it lives:**

- *wpa_html_capture* submodule

HTML Example

https://www.drupal.org/about



```
<a href="/about" class="active">About</a> </li>

<div class="pane-content">
  <ul class="menu"><li class="first leaf"><a href="/about/values-and-principles" title="">Values &amp; Principles</a></li>
<li class="leaf"><a href="/8" title="">Drupal 8</a></li>
<li class="leaf"><a href="/about/drupal-7" title="">Drupal 7</a></li>
<li class="leaf"><a href="/about/drupal6-eol">Drupal 6 (end of life)</a></li>
<li class="leaf"><a href="/industries" title="">Industries</a></li>
<li class="leaf"><a href="/about/history">Our history</a></li>
<li class="leaf"><a href="/about/strategic-initiatives" title="">Strategic Initiatives</a></li>
<li class="leaf"><a href="/about/features/accessibility">Accessibility</a></li>
<li class="leaf"><a href="/about/media-kit" title="">Media Kit</a></li>
<li class="leaf"><a href="/about/licensing">Licensing</a></li>
<li class="leaf"><a href="/about/awards">Awards</a></li>
<li class="leaf"><a href="/about/faq">FAQ</a></li>
<li class="last leaf"><a href="/blog">Drupal blog</a></li>
</ul> </div>

</div>
<div class="panel-separator"></div><div class="panel-pane pane-views-panes pane-blog-panel-pane-2" >

  <h2 class="pane-title">
    Recent posts    </h2>
```

Skeleton Capture Utility

- ▶ **What it does:**

- Absolutely nothing.

- ▶ **Why does it exist:**

- Prototype for how to build other capture utilities.
- Can be used to test surrounding behavior without having to perform actual captures.

- ▶ **Where it lives:**

- `wpa_skeleton_capture` submodule

Web Page Test Capture Utility

- ▶ **What it does:**

- Captures web performance test results.

- ▶ **How it works:**

- Starts and captures performance test results from webpagetest.org.
- While this module can presently capture data, we don't have a way of actually showing this data visually yet.

- ▶ **Where it lives:**

- (Experimental) Performance Budget module:
https://www.drupal.org/project/performance_budget

Other PROPOSED CAPTURE UTILITIES

- Configuration Archive Capture Utility
- Rendered DOM Capture Utility
- Google Analytics Threshold Monitor
- Security Scan Utility

Capture Entities

- ▶ **web_page_archive**
 - Configuration entities containing settings for distinct jobs.
 - Identify which capture utilities should be used.
- ▶ **web_page_archive_run**
 - Content entities containing the actual capture results.
 - Each run is stored as a separate revision.
- ▶ Each *web_page_archive* entity is mapped to a *web_page_archive_run* entity.

Configuring A Capture Job

[Back to site](#) [Manage](#) [Shortcuts](#) [wpa_admin](#) [Devel](#)

Label *
 Machine name: drupal_org
Label for the Web page archive entity.

Run capture job automatically.

Crontab schedule (relative to PHP's default timezone)

Crontab format (see <https://crontab.guru/>)
Next run: 2018-05-29 @ 5:00am CDT

Timeout (ms)

Amount of time to wait between captures, in milliseconds.

Capture Type

Honor robots.txt restrictions.

If checked, capture utility will respect robots.txt crawling rules.

Browser user agent

Specify the browser user agent. e.g. "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_12_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/59.0.3071.115 Safari/537.36"

URLs to Capture *

A list of urls to capture.

CAPTURE UTILITY	OPERATIONS
Screenshot capture utility	<input type="button" value="Edit"/>
<input type="button" value="Select a new capture utility"/>	<input type="button" value="Add"/>

[Delete](#)

[Back to site](#) [Manage](#) [Shortcuts](#) [wpa_admin](#) [Devel](#)

Edit *Screenshot capture utility* capture utility ☆

[Home](#) » [Administration](#) » [Configuration](#) » [System](#) » [Web Page Archive](#) » [Drupal.org](#)

Browser *

Specify the browser you would like to use to perform captures with.

Capture width (in pixels) *

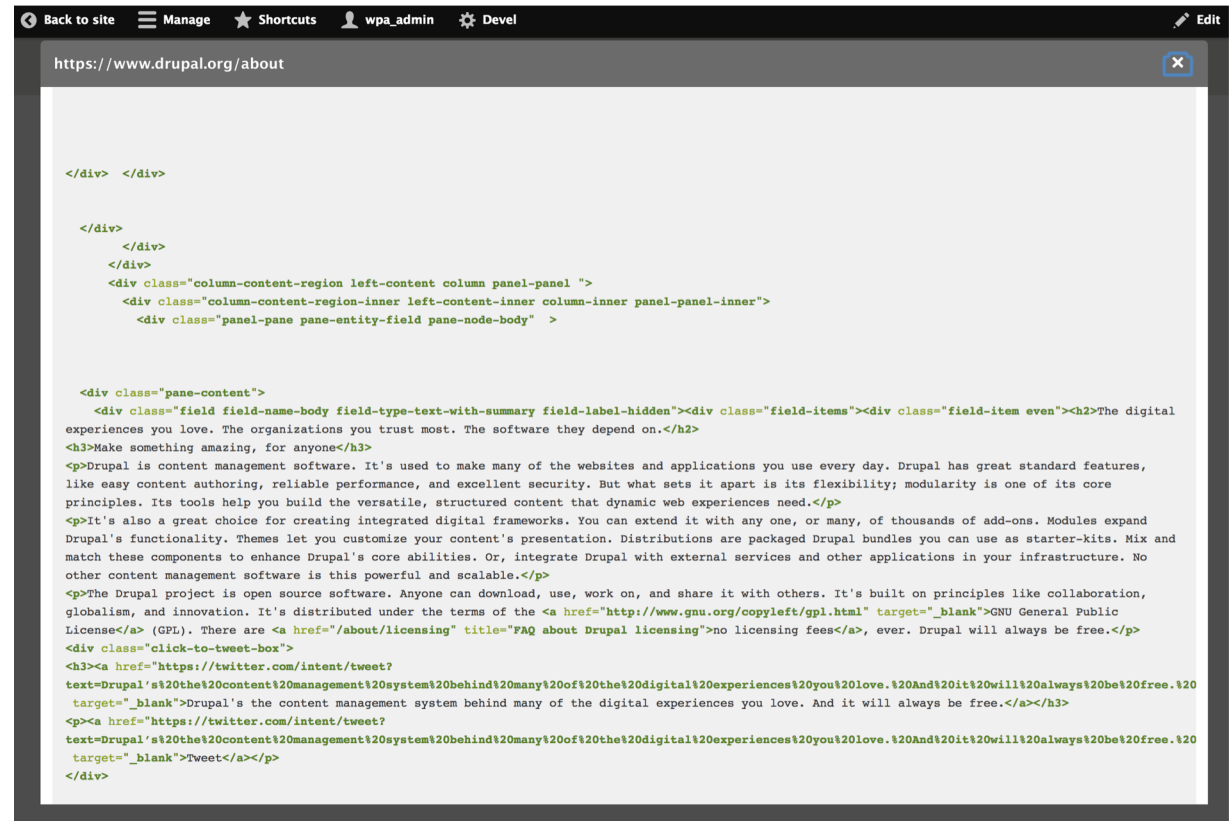
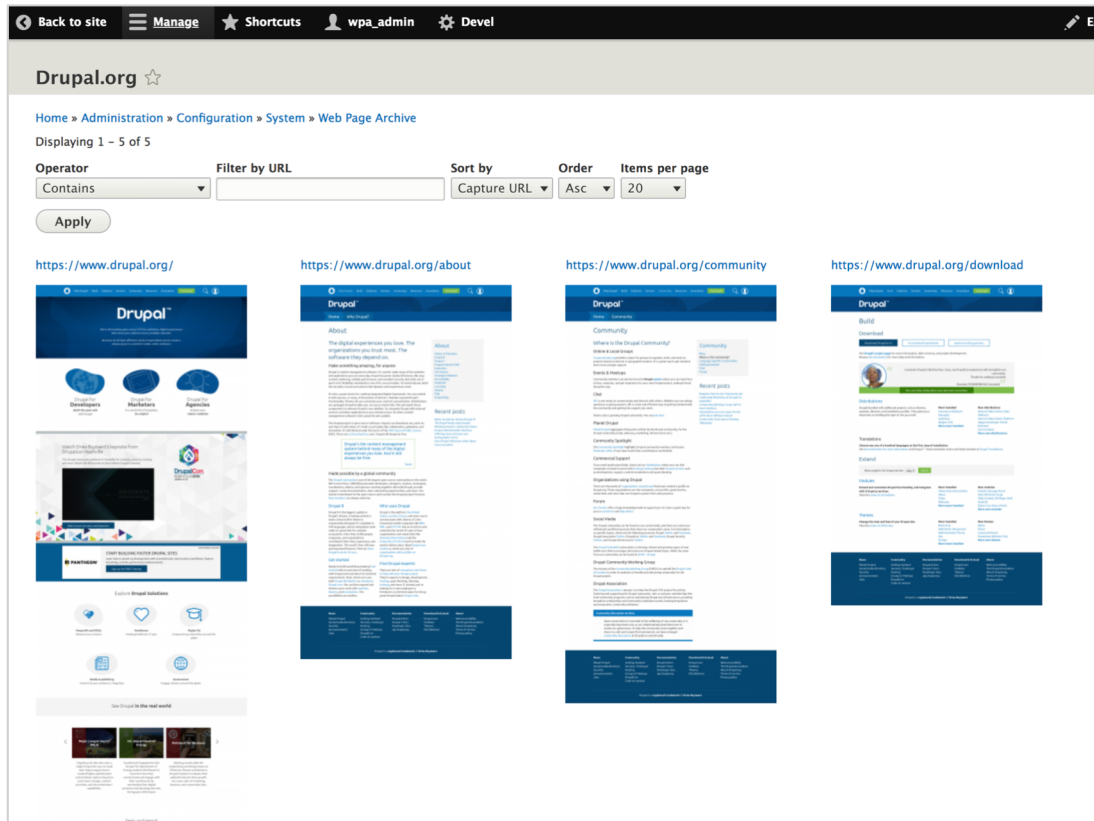
Specify the width you would like to capture.

Image type *

Delay (ms) *

How long to delay before capturing a screenshot. This is helpful if you need to wait for javascript or resources to load.

Viewing Capture Results



Current Project Status: 1.0

- Reliably captures screenshots and HTML
- Integration with Headless Chrome and PhantomJS
- Captures manually, and automatically via crontab-based scheduling
- Parses XML sitemaps
- Honors robots.txt restrictions
- Basic garbage collection
- Views-driven user interface
- Test coverage for most functionality
- Well documented

Spot the Differences

January 5, 2018

The screenshot shows the Drupal homepage with a blue header. The navigation menu includes: Download & Extend, Community, Documentation, Support, Jobs, Marketplace, and About. The main content area features a large 'About' section with the text: 'The digital experiences you love. The organizations you trust most. The software they depend on.' Below this is a section titled 'Make something amazing, for anyone' with a paragraph about Drupal's flexibility and modularity. To the right of the main text is a sidebar with a list of links: About, Drupal 8, Drupal 7, Drupal 6 (end of life), Industries, Our history, Mission and principles, Strategic Initiatives, Accessibility, Media Kit, Licensing, Awards, FAQ, and Drupal blog. Below the sidebar is a 'Recent posts' section with three links: Accelerate Drupal 8 by funding a Core Committer, Massachusetts launches Mass.gov on Drupal 8, and We have 10 days to save net neutrality. At the bottom is a section titled 'Made possible by a global community' with a paragraph about the Drupal community.

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Drupal is content management software. It's used to make many of the websites and applications you use every day. Drupal has great standard features, like easy content authoring, reliable performance, and excellent security. But what sets it apart is its flexibility; modularity is one of its core principles. Its tools help you build the versatile, structured content that dynamic web experiences need.

It's also a great choice for creating integrated digital frameworks. You can extend it with any one, or many, of thousands of add-ons. Modules expand Drupal's functionality. Themes let you customize your content's presentation. Distributions are packaged Drupal bundles you can use as starter-kits. Mix and match these components to enhance Drupal's core abilities. Or, integrate Drupal with external services and other applications in your infrastructure. No other content management software is this powerful and scalable.

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May 26, 2018

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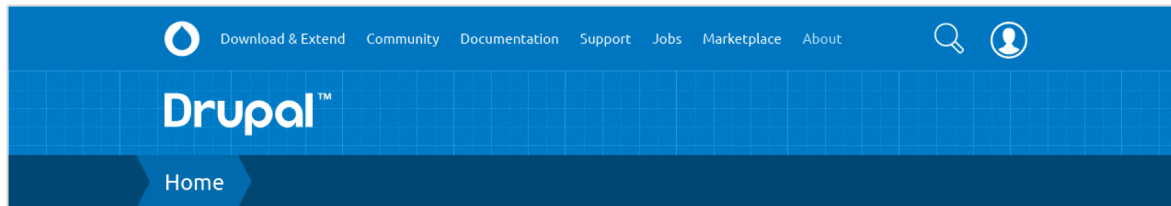
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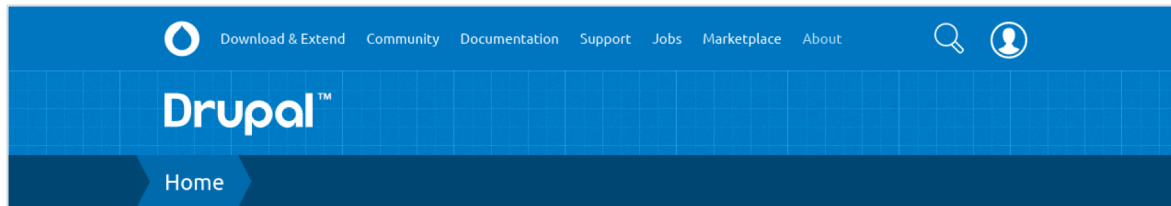
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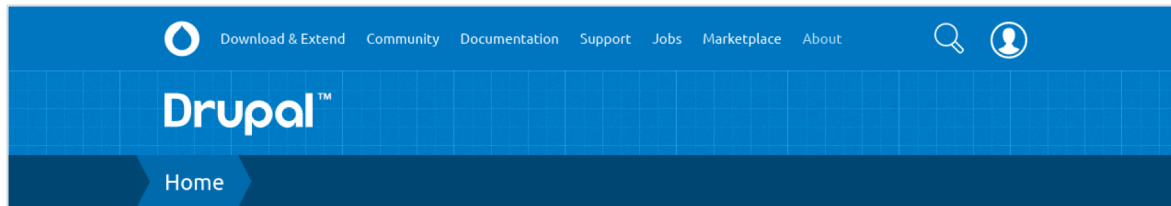
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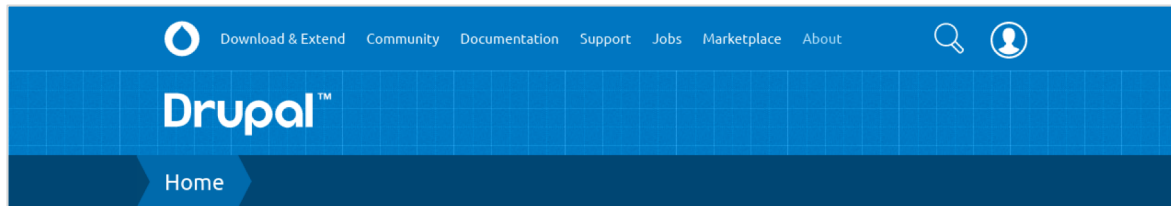
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Drupal is content management software. It's used to make many of the websites and applications you use every day. Drupal has great standard features, like easy content authoring, reliable performance, and excellent security. But what sets it apart is its flexibility; modularity is one of its core principles. Its tools help you build the versatile, structured content that dynamic web experiences need.

It's also a great choice for creating integrated digital frameworks. You can extend it with any one, or many, of thousands of add-ons. Modules expand Drupal's functionality. Themes let you customize your content's presentation. Distributions are packaged Drupal bundles you can use as starter-kits. Mix and match these components to enhance Drupal's core abilities. Or, integrate Drupal with external services and other applications in your infrastructure. No other content management software is this powerful and scalable.

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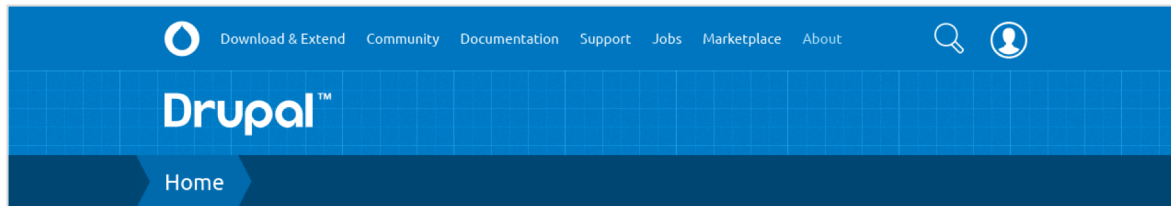
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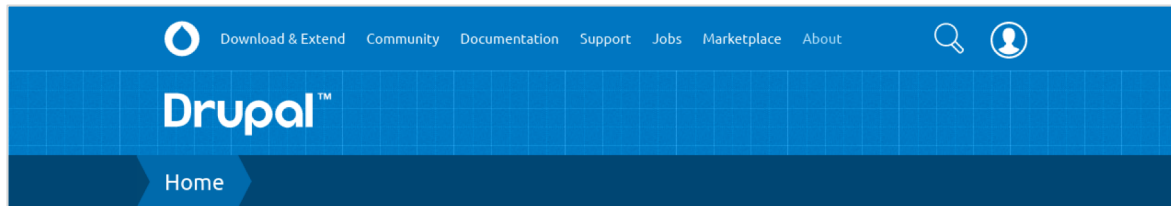
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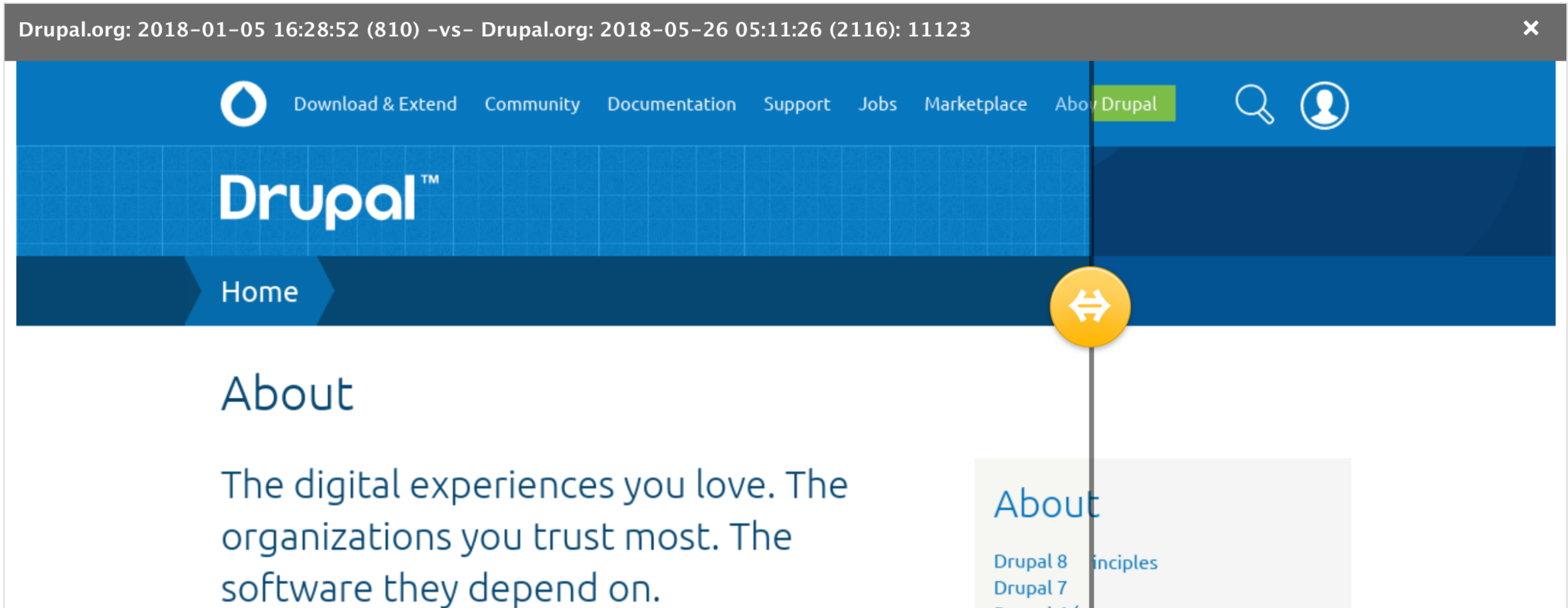
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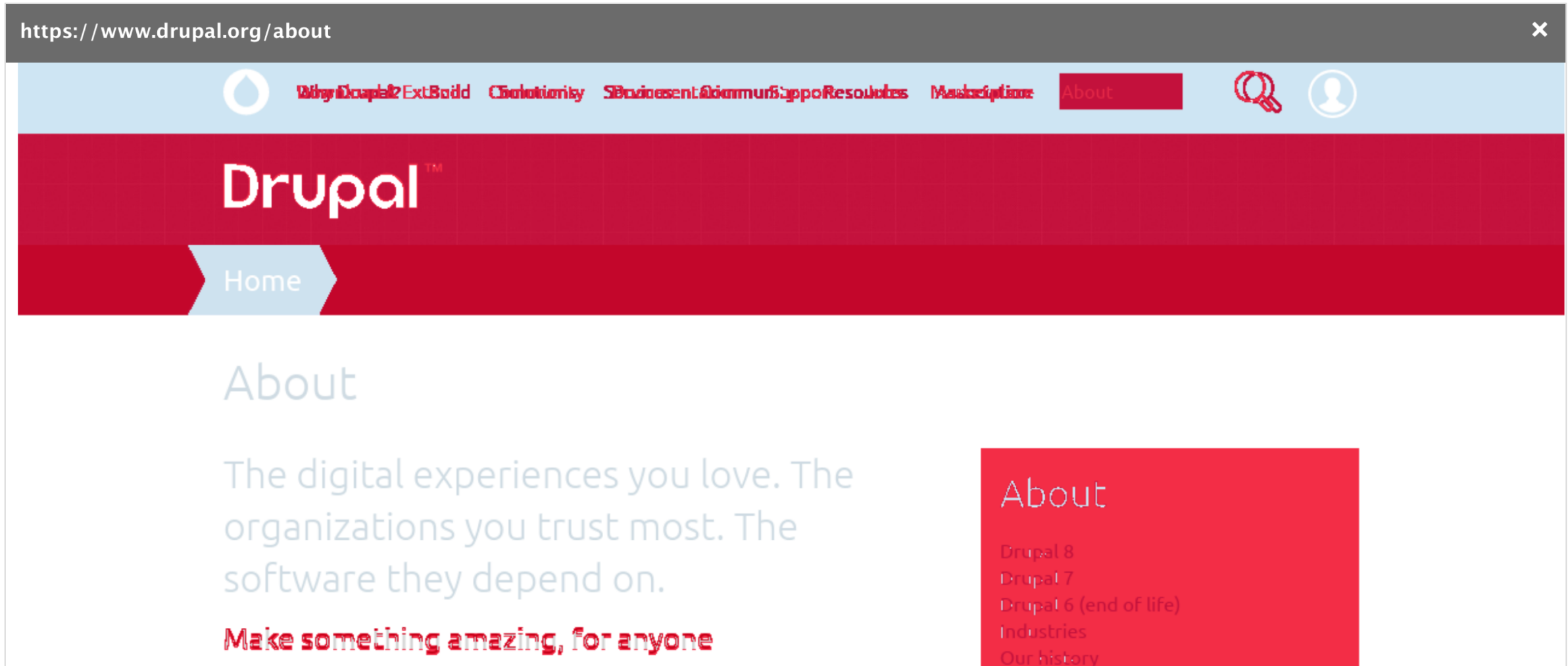
Comparison Utilities

- ▶ Drupal plugins responsible for performing comparisons of different types of captured data.
- ▶ Can be used across environments/domains
- ▶ Store comparison results as ComparisonResponse entities

Compare Screenshots: Before & After



Compare Screenshots: Heatmap



Compare HTML: Text Diffing

Rackspace.com (en-us, HTML): 2017-12-31 04:11:39 (767) -vs- Rackspace.com (en-us, HTML): 2018-01-12 04:08:27 (863): 795



```
class="dropdown-menu navbar-dropDownMenu"><li class="navbar-dropDownItem"><a href="/managed-hosting" class="navbar-dropDownLink">Managed Hosting</a></li>
<li class="navbar-tertiary-dropDownItem"><a href="/cloud/private" class="navbar-tertiary-dropDownLink">Private Cloud</a></li>
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- <li class="navbar-tertiary-dropDownItem"><a href="/hybrid" class="navbar-tertiary-dropDownLink">Hybrid Cloud</a></li>
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</ul></li>
<li class="navbar-tertiary-dropDownItem"><a href="/ecommerce-hosting" class="navbar-tertiary-dropDownLink">Ecommerce</a></li>
<li class="navbar-tertiary-dropDownItem"><a href="/erp" class="navbar-tertiary-dropDownLink">Enterprise Resource Planning (ERP)</a></li>
- <li class="navbar-tertiary-dropDownItem"><a href="/web-content-management" class="navbar-tertiary-dropDownLink">Web Content Management</a></li>
</ul></li>
<li class="navbar-dropDownItem"><a href="/professional-services" class="navbar-dropDownLink">Professional Services</a></li>
<li class="navbar-topItem"><span class="navbar-topLink navbar-topLink-dropDown" data-toggle="dropdown" role="button" aria-expanded="false">Platforms</span><ul class="dropdown-menu navbar-dropDownMenu"><li class="navbar-dropDownItem"><a href="/dedicated-servers" class="navbar-dropDownLink">Dedicated Servers</a></li>
```

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+ <li class="navbar-tertiary-dropDownItem"><a href="/cloud/hybrid" class="navbar-tertiary-dropDownLink">Hybrid Cloud</a></li>
<li class="navbar-tertiary-dropDownItem"><a href="/cloud/multi-cloud" class="navbar-tertiary-dropDownLink">Multi-Cloud</a></li>
</ul></li>
<li class="navbar-tertiary-dropDownItem"><a href="/ecommerce-hosting" class="navbar-tertiary-dropDownLink">Ecommerce</a></li>
<li class="navbar-tertiary-dropDownItem"><a href="/erp" class="navbar-tertiary-dropDownLink">Enterprise Resource Planning (ERP)</a></li>
+ <li class="navbar-tertiary-dropDownItem"><a href="/solutions/web-content-management" class="navbar-tertiary-dropDownLink">Web Content Management</a></li>
</ul></li>
<li class="navbar-dropDownItem"><a href="/professional-services" class="navbar-dropDownLink">Professional Services</a></li>
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```


1.1 Release Plan

- ▶ 1.1 Release Plan:
 - <https://www.drupal.org/node/2930857>
- ▶ Some Remaining Issues:
 - #2936374: Comparison Criteria for ScreenshotCaptureResponse - Image Diff
 - #2932535: Run Comparison Documentation

Future Roadmap

- Roadmap:

- <https://www.drupal.org/node/2916976>

- Some Upcoming Issues:

- [#2937227: Variance filter](#)
- [#2908636: Inject javascript into session](#)
- [#2922937: Don't save duplicate captures](#)
- [#2896502: Run entity performance on large sitemaps](#)
- [#2975917: Drush 9 support](#)
- [#2977032: Pre-configured Docker Container](#)

How You Can Help

- Project issue queue
- Submit patches or pull requests
- Review code
- Report bugs
- Submit feature requests
- Write tests
- Help improve documentation
- **Help improve UX**



DEMONSTRATION



ARCHIVING AND VISUAL REGRESSION USING DRUPAL 8

https://www.drupal.org/project/issues/web_page_archive

Contributions are welcome!

David Stinemetze

Twitter: @davidstinemetze

Drupal.org/GitHub: @WidgetsBurritos

