

WebAssets, exposed.

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Also Nick Joyce



but Nick couldn't make it due to...

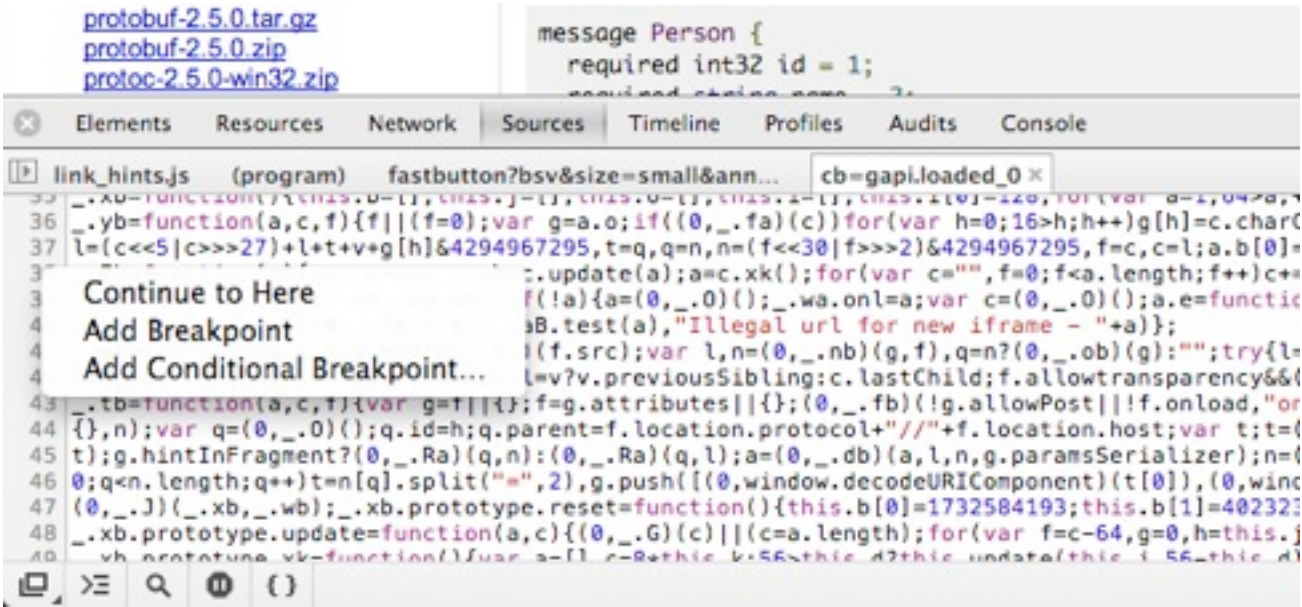


some minor visa issues.

So who are we and what is asset
management?



Compiles? #@\$% THAT.



This. Stuff.

It. Sucks. To. Debug.

[protobut-2.5.0.tar.bz2](#)
[protobuf-2.5.0.tar.gz](#)
[protobuf-2.5.0.zip](#)
[protoc-2.5.0-win32.zip](#)

```
message Person {  
  required int32 id = 1;  
  required string name = 2;
```

The screenshot shows a web browser's developer tools interface. The top navigation bar includes tabs for Elements, Resources, Network, Sources, Timeline, Profiles, Audits, and Console. The Sources tab is active, displaying the file link_hints.js. The code in the editor shows a function activateMode(mode) with several conditional checks. Line 38 is highlighted in blue, indicating a breakpoint or error location. The error message in the console above the editor reads: "message Person { required int32 id = 1; required string name = 2;".

```
33 activateMode: function(mode) {  
34   var el, hintMarkers;  
35   if (mode == null) {  
36     mode = OPEN_IN_CURRENT_TAB;  
37   }  
38   if (!document.documentElement) {  
39     return;  
40   }  
41   if (this.isActive) {  
42     return;  
43   }  
44   this.isActive = true;  
45   this.setOpenLinkMode(mode);  
46   hintMarkers = this.markerMatcher.fillToMarkers((function() {
```




Javascript

Grunt

Mincer

brewer.js

Ruby

Sprockets

Rails asset pipeline

Jammit



python™

Your Python Options

django-pipeline

django-compressor

flask-funnel

pyramid-asset-compiler



So what is webassets?

**make it work:
examples**

Simple Setup

Install Django Assets

- `pip install django-assets`

Add `django_assets` to `INSTALLED_APPS` in `settings.py`

```
INSTALLED_APPS = {  
    ....  
    'django_assets',  
    ....  
}
```

Defining Asset Bundles

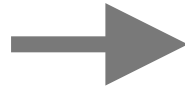
- Templates
 - Similar to Django Compressor
 - Asset bundles defined in HTML Templates
- Python
 - All asset bundles defined in Python
 - Extremely flexible and powerful
- Loaders (YAML)
 - Similar to Django-pipeline
 - Loads asset bundle defs from YAML

Templates Only

- Define all assets in the templates
- No actual Python needed
- Great for getting started or small apps

LESS or SASS

```
@red: #842210;  
@blue: #002284;  
  
// Make the awesome  
// happen.  
div#header {  
    background: @red;  
  
    div.item {  
        background: @blue;  
    }  
}
```



CSS

```
div#header {  
    background: #842210;  
}  
div#header div.item {  
    background: #002284;  
}
```


LESS/SASS (Template) Example

```
{% load assets %}
{% assets filters="less",
    output="static/css/app.css",
    "css/app/menus.less",
    "css/app/content.less",
    "css/app/footer.less" %}

    <link rel="stylesheet"
        href="{{ ASSET_URL }}" />

{% endassets %}
```

Result: Debug=True

```
<link rel="stylesheet"  
      href="/static/css/menus.css"/>
```

```
<link rel="stylesheet"  
      href="/static/css/content.css"/>
```

```
<link rel="stylesheet"  
      href="/static/css/footer.css"/>
```

Result: Debug=False

```
<link rel="stylesheet"  
      href="/static/css/app.92dba118.css" />
```



(please forgive the lack of creativity here)

We want:

```
{% asset_link("/foobar.css") %}
```

to output:

```
<link href="/static/js/foo.css?f4js">
```

or:

```
<link href="/static/js/foo-f4js.css">
```

CSS

```
div#header {  
  background: #842210;  
}  
div#header div.item {  
  background: #002284;  
}
```



Ugly CSS

```
div#header{background:#842210}  
div#header div.item{background:#002284}
```


Multiple Filter Template Example

```
{% load assets %}
{% assets filters="less, cssmin",
  output="static/css/app.css",
  "css/app/menus.less",
  "css/app/content.less",
  "css/app/footer.less" %}

  <link rel="stylesheet"
        href="{{ ASSET_URL }}" />

{% endassets %}
```

Result: Debug=True

```
<link rel="stylesheet"  
      href="/static/css/menus.css"/>
```

```
<link rel="stylesheet"  
      href="/static/css/content.css"/>
```

```
<link rel="stylesheet"  
      href="/static/css/footer.css"/>
```

Result: Debug=False

```
<link rel="stylesheet"  
      href="/static/css/app.92dba118.css" />
```

And, it can get dense. Very Dense.

```
*{padding:0;margin:0}html,body,div,span,object,iframe,h1,h2,h3,h4,h5,h6,p,
blockquote,pre,a,abbr,acronym,address,code,del,dfn,em,img,q,dl,dt,dd,ol,ul,li,
li,fieldset,form,label,legend,table,caption,tbody,tfoot,thead,tr,th,td{margin
:0;padding:0;border:0;font-weight:inherit;font-style:inherit;font-size:100%;
font-family:inherit;vertical-align:baseline}body{line-height:1.5 table
{border-collapse:separate;border-spacing:0}caption,th,td{text-align:left;
font-weight:400}table,td,th{vertical-align:top}blockquote:before,blockquote:
after,q:before,q:after{content:""}blockquote,q{quotes:"" ""}a img{border:0}.
vanilla-inline li{display:inline;list-style:none}.block-inline li{display:
block;float:left}.assignments li,.vanilla-rows li{font-size:12px;font-
weight:700;list-style:none;border-top:1px solid #e4e4e4;padding:10px 0}.
util-left{float:left;display:inline} .util-right{float:right;display:
inline}.util-clear{clear:both}.no-border{border:0!important}.no-margin
{margin:0!important}.no-bg{background:none!important}.no-pad-left{padding-
left:0!important}.no-pad-right{padding-right:0!important}hr{margin:0;
padding:0;height:0;width:100%; {background:url(http://i.cdn.turner.com/
100%;clear:both;.fdf_shdcaheader{background:url(http://i.cdn.turner.com/
fdf/.e/img/3.0/main/fdf_shdcaheader_2010bn.gif) 0 0 no-repeat}.
fdf_shdcamtt12010bn.fdf_main10t1cntnt{background:#fafafa url(http://
i.cdn.turner.com/fdf/.e/img/3.0/main/fdf_bk_header.gif) 0 4px no-
repeat;margin:0 0 0 5px;text-align:center;height:252px}.
fdf_shdcamtt12010bn.fdf_main10t1dlne{height:4px}.fdf_shdcamtt12010bn
#fdf_maintt1imgbul .fdf_divline{background-color:#c2c2c2;margin:20px 155px
10px}.fdf_shdcamtt12010bn h1{font-size:45px;line-height:50px;padding:18px 0
0}.fdf_shdcamtt12010bn h1 a:link,.fdf_shdcamtt12010bn h1 a:visited
{color:#000}.fdf_shdcamtt12010bn h1 a:hover{color:#ca0002}.
fdf_shdcamtt12010bn #fdf_maintt1imgbul p{padding:0 155px;line-height:15px}
```

Asset Bundles Defined In Templates

Pros

- Simple.
- All assets are referenced in the templates/html
- Each page can easily have different combinations of static file

Cons

- Files referenced throughout the templates

Python Bundle Example

Create an `assets.py` file in the application directory.

Each application needs it's own `assets.py` file.

CoffeeScript

```
square = (x) -> x * x

# The awesome:
math =
  root: Math.sqrt
  square: square
  cube: (x) -> x * square(x)
```



JavaScript

```
square = function(x) {
  return x * x;
};

math = {
  root: Math.sqrt,
  square: square,
  cube: function(x) {
    return x * square(x);
  }
};
```

Python Bundle Example

```
from django_assets import Bundle, register

coffee_bundle = Bundle(
    'coffee/square.coffee',
    'coffee/use_square.coffee',
    filters='coffeescript',
    output='js/square.js')

js_libs_bundle = Bundle(
    'js/jquery.js',
    'js/underscore.js',
    'js/backbone.js')
```


Python Bundle Example

```
js_all = Bundle(  
    coffee_bundle,  
    js_libs_bundle,  
  
# CSS, etc are set up similarly  
  
register('js_all', js_all)
```

Python Bundle Example

```
{% load assets %}
```

```
{% assets "js_all" %}  
  <script type="text/javascript"  
        src="{{ ASSET_URL }}">  
  </script>  
{% endassets %}
```

Without Templates

```
from webassets import Environment

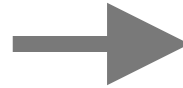
# Setup your bundles here ...
my_env = Environment()

my_env.register('js_all', js_all)

# Outputs: ('/static/lib.js',)
env['all_js'].urls()
```

JavaScript

```
square = function(x) {  
    return x * x;  
};  
  
math = {  
    root: Math.sqrt,  
    square: square,  
    cube: function(x) {  
        return x * square(x);  
    }  
};
```



Ugly JavaScript

```
square=function(a)  
{return  
a*a},math={root:Math.sq  
rt,square:square,cube:f  
unction(a){return  
a*square(a)}};
```

Python Bundle Example

```
from django_assets import Bundle, register

coffee_bundle = Bundle(
    'coffee/square.coffee',
    'coffee/use_square.coffee',
    filters='coffeescript'
    output='js/square.js')

js_libs_bundle = Bundle(
    'js/jquery.js',
    'js/underscore.js',
    'js/backbone.js')
```

Python Bundle Example

```
js_all = Bundle(  
    coffee_bundle,  
    js_libs_bundle,  
    filters='jsmin')  
  
# CSS, etc are set up similarly  
  
register('js_all', js_all)
```

Result: Debug=True

```
<script type="text/javascript"  
        src="/static/js/square.js">  
</script>
```

```
<script type="text/javascript"  
        src="/static/js/jquery-1.9.1.js">  
</script>
```

```
<script type="text/javascript"  
        src="/static/js/underscore.js">  
</script>
```

```
<script type="text/javascript"  
        src="/static/js/backbone.js">  
</script>
```

Result: Debug=False

```
<script type="text/javascript"  
        src="/static/lib-7e1c95ab.js">  
</script>
```


Uglified, Bundled JavaScript Gets Dense Too

```
(function(){var k=this,y=k.Backbone,h=[],z=h.push,r=h.slice,A=h.splice,g;g="undefined"!==typeof exports?exports:k.Backbone={};g.VERSION="0.9.9";var e=k._;!e&&"undefined"!==typeof require&&(e=require("underscore"));g.$=k.jQuery||k.Zepto||k.ender;g.noConflict=function(){k.Backbone=y;return this};g.emulateHTTP=!1;g.emulateJSON=!1;var s=/\s+/,n=function(a,b,c,d){if(!c) return!0;if("object"===typeof c)for(var f in c)a[b].apply(a,[f,c[f]].concat(d));else if(s.test(c)){c=c.split(s);f=0;for(var e=c.length;f<e;f++)a[b].apply(a,[c[f]].concat(d))}else return!0},t=function(a,b,c){var d,a=-1,f=b.length;switch(c.length){case 0:for(;++a<f;)(d=b[a]).callback.call(d.ctx);break;case 1:for(;++a<f;)(d=b[a]).callback.call(d.ctx,c[0]);break;case 2:for(;++a<f;)(d=b[a]).callback.call(d.ctx,c[0],c[1]);break;case 3:for(;++a<f;)(d=b[a]).callback.call(d.ctx,c[0],c[1],c[2]);break;default:for(;++a<f;)(d=b[a]).callback.apply(d.ctx,c)}};h.g.Events={on:function(a,b,c){if(!n(this,"on",a,[b,c])||!b)return this;this._events||(this._events={});(this._events[a]||(this._events[a]=[])).push({callback:b,context:c,ctx:c||this});return this},once:function(a,b,c){if(!n(this,"once",a,[b,c])||!b)return this;var d=this,f=e.once(function(){d.off(a,f);b.apply(this,arguments)});f._callback=b;this.on(a,f,c);return this},off:function(a,b,c){var d,f,l,g,i,m,h,j;if(!this._events||!n(this,"off",a,[b,c]))return this;if(!a&&!b&&!c) return this._events={},this;g=a?[a]:e.keys(this._events);i=0;for(m=g.length;i<m;i++)if(a=g[i],d=this._events[a]){l=[];c}{h=0;for(j=d.length;h<j;h++)f=d[h],(b&&b!==(f.callback._callback||f.callback)||c&&c!==f.context)&&l.push(f)}this._events[a]=l}return this},trigger:function(a){if(!this._events)return this;var b=r.call(arguments,1);if(!n(this,"trigger",a,b))return this;var c=this._events[a],d=this._events.all;c&&t(this,c,b);d&&t(this,d,arguments);return this},listenTo:function(a,b,c){var d=this._listeners||(this.listeners={}),f=a.listenerId||
```

Python Asset Bundles

Pros

- Clean and simple.
- Flexible.
- Nested Bundles.
- All files referenced in a single location

Cons

- Not with templates/html
- May not be ideal for non-Python developers

Yaml Bundle Example

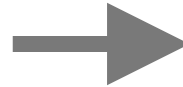
Same as Python Example

- Create an `assets.py` file in the application directory.
- Each application will need it's own `assets.py` file.
- Can be defined in other locations using the `ASSETS_URL` setting.

Also create `assets.yml` file

JavaScript Templates

```
<html>
  <body>
    Hello <%- world %>.
  </body>
</html>
```



JST File

```
window.JST['hello'] =
_.template('<html>\n
<body>Hello <%- world
%>.</body>\n</html>');
```

Yaml Bundles

```
from webassets.loaders import YAMLLoader
```

```
loader = YAMLLoader('asset.yml')
```

```
loader.load_bundles()
```

Yaml Bundle Example Cont.

```
templates_all:  
  contents:  
    js/templates/my_template1.jst  
    js/templates/my_template2.jst  
  filters: jst  
  output: my_templates.js
```

YAML JST Bundle Example

```
{% load assets %}
```

```
{% assets "templates_all" %}  
  <script type="text/javascript"  
        src="{{ ASSET_URL }}">  
  </script>  
{% endassets %}
```

Result: Debug=True

```
<script type="text/javascript"  
        src="/static/js/my_templates.js">  
</script>
```


Result: Debug=False

```
<script type="text/javascript"  
    src="/static/my_templates.7e1c95ab.js">  
</script>
```

YAML Asset Bundles

Pro

- Clean and simple.
- Readable.
- All files referenced in a single location
- Separation of code and configuration

Cons

- Can be more complex.
- Not with templates/html
- Still needs `assets.py` to load yamll

Included Filters

Javascript: YUI Compressor, Closure, UglifyJS, JSMIn ...

CSS: CSSMin, CSSUtils, YUI CSS ...

JS/CSS: LESS, SASS, SCSS, Compass, Coffeescript ...

Templates: JST, Handlebars, DustJS

Customization



Redneck riding mower...

Super Easy Custom Filters

```
def noop(_in, out, **kw):  
    out.write(_in.read())
```

```
bundle = Bundle(  
    'input.js', filters=(noop,))
```

or

```
{% assets filters=(noop, 'jsmin') ... %}
```

Easy Custom Filters

```
from webassets.filter import Filter

class NoopFilter(Filter):
    name = 'noop'

    def output(self, _in, out, **kwargs):
        out.write(_in.read())

    def input(self, _in, out, **kwargs):
        out.write(_in.read())
```



Assets Configuration

Many configuration options

- File Locations
- URL Constructs
- Debug
 - True, False, Merge
- Build Style
 - Auto, Manual
- Caching

Management Command

Comes with a `Manage.py` hook

```
$ ./manage.py assets build  
Building asset: static/my_app.js  
Building asset: static/my_app.css
```

If templates only you'll need to run with a flag

```
$ ./manage.py assets build --parse-templates
```

Web Framework Support

Available Plugins

- Flask
- Pyramid
- Jinja2
- Mako (Coming Soon!)

Quick Flask Example

```
from flask import Flask
from flask.ext.assets import Environment, Bundle

app = Flask(__name__)
assets = Environment(app)

js = Bundle(
    'jquery.js', 'base.js', 'widgets.js',
    filters='jsmin',
    output='gen/packed.js')

assets.register('js_all', js)
```

Quick Flask Example

Supports Templates Only Mode

- Similar setup as Django

Works with Blueprints

Configuration

```
assets_env.debug = True  
app.config['ASSETS_DEBUG'] = True
```

Command Line Interface

```
from webassets.script import CommandLineEnvironment

log = logging.getLogger('webassets')
log.addHandler(logging.StreamHandler())
log.setLevel(logging.DEBUG)

assets_env.add(our_css_bundle)
assets_env.add(our_js_bundle)

cmdenv = CommandLineEnvironment(assets_env, log)

cmdenv.build()
```

Resources

Webassets Docs and repo:

<http://elsdoerfer.name/files/docs/webassets/>

<https://github.com/miracle2k/webassets>

Flask Assets:

<http://elsdoerfer.name/docs/flask-assets/>

Django Assets:

<http://elsdoerfer.name/docs/django-assets/>

Thanks.

We're on github.

github.com/robertkluin

github.com/lyddonb

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Questions?

