

From require.js to

webpack

Why are you here?

- Currently using webpack?
- Currently using require.js?
- Currently using browserify?
- Not yet using any of these technologies?

PayPal: Summary

PayPal, Inc. [US] https://www.paypal.com/myaccount/home

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PayPal [Summary](#) [Activity](#) [Send & Request](#) [Wallet](#) [Shop](#) [Log out](#)

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Your profile is at 100% ✓

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Sending money is the simple way to pay someone back right away.

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Add money Transfer to your bank

Banks and cards >

WELLS FARGO BANK NA x-5297

Visa x-4618

Completed >

Date	Description	Amount
FEB 16	Uber Technologies, Inc Payment	- \$20.51
FEB 09	Bank account Transfer to bank	- \$250.00
FEB 04	Steve White Money sent	- \$250.00
FEB 04	mauisteve@yahoo.com Refund	+ \$250.00
FEB 03	mauisteve@yahoo.com Money sent – Canceled	- \$250.00

AMD is great

```
define(['jquery'], function($) {  
    $.get('/parties').then(party);  
});
```

AMD is okay

```
define(['jquery', 'lodash'], function($, _) {
  $.get('/parties').then(_.filter(onlyNiceParties)).then(party);
});
```

THIS ALWAYS HAPPENS

```
define([
  'jquery',
  'lodash',
  'friends',
  'chips',
  'uber',
  'music',
  'records',
  'pillow',
  'aGift'
], function($, _, drinks, friends, cars, music, records, pillow, aGift) {
  $.get('/parties').then(_.filter(party, goodOnes));
});
```

browseserify

almost perfect

It didn't make sense

to rewrite

our entire app

webpack *Just Worked*

- Moved build system over in a few hours
- Supported all of AMD syntax without changing *anything*
- Shims and aliases ported over without any headache
- Build time was significantly shorter

Let me walk you through it...

Create a *webpack.config.js* file

- > `touch webpack.config.js`
- > `vim webpack.config.js`

Where does your code live?

```
{  
  resolve: {  
    modulesDirectories: ["public/js"] // "baseUrl"  
  }  
}
```

Migrate custom paths

```
// require.js paths  
paths: {  
  backbone: "lib/backbone-1.1.0",  
  jquery: "lib/jquery-1.10.2",  
  underscore: "lib/lodash.underscore-2.3.0",  
  jqueryUI: "lib/jquery-ui.min"  
}
```

Paths become webpack aliases

```
resolve: {  
  alias: {  
    backbone: "lib/backbone-1.1.0",  
    jquery: "lib/jquery-1.10.2",  
    underscore: "lib/lodash.underscore-2.3.0",  
    jqueryUI: "lib/jquery-ui.min"  
  }  
}
```

Migrate shims

```
// require.js shim config

shim: {

  "lib/jquery-1.10.2": {
    exports: "$"
  },
  "lib/backbone-1.1.0": {
    deps: ["underscore", "jquery"],
    exports: "Backbone"
  }
}
```

Backbone shim (webpack)

```
loaders: [ {  
  test: /backbone-1.1.0/,  
  loaders: [  
    "imports?jquery,underscore",  
    "exports?Backbone"  
  ]  
}]
```

Note: Many other shim examples can be found in the webpack wiki³

³ <https://github.com/webpack/docs/wiki/shimming-modules>

Almost complete

```
{  
  modules: {  
    loaders: [ /* shims, etc. */ ],  
  },  
  resolve: {  
    alias: { /* paths, etc. */ },  
    modulesDirectories: ["public/js"],  
  }  
}
```

Preparing the Build

```
{  
  entry: "public/js/app.js",  
  
  output: {  
    path: "./public/js",  
    filename: "[name].built.js"  
  },  
  
  devtool: "source-map"  
}
```

```
// webpack.config.js
module.exports = {
  entry: "./public/js/app.js",
  output: {
    path: "./public/js",
    filename: "[name].built.js"
  },
  devtool: "source-map",
  modules: {
    loaders: [ /* shims, etc. */ ],
  },
  resolve: {
    alias: { /* paths, etc. */ },
    modulesDirectories: ["public/js"],
  }
}
```

```
~/dev/webpack-test (master) $ webpack  
Hash: 9430bd51e47e6de23968  
Version: webpack 1.12.14  
Time: 612ms
```

Asset	Size	Chunks	Chunk Names
main.built.js	286 kB	0	[emitted] main
main.built.js.map	359 kB	0	[emitted] main
[0] ./public/js/app.js	161 bytes	{0} [built]	
[1] ./public/js/vendor/jquery-1.10.2.js	273 kB	{0} [built]	
[3] ./public/js/util.js	169 bytes	{0} [built]	
+ 1 hidden modules			

Update your Script tag

Just replace the **src** and **data-main**:

- `<script data-main="config" src="vendor/require.js"></script>`
- + `<script src="public/js/main.built.js"></script>`



Why do I want this?

1. Start using CJS syntax
2. Easy to add ES6 support
3. Let NPM manage your dependencies
4. Huge collection of plugins
5. Excellent debugging

1. Start adding CommonJS modules

Remember this?

```
define([
  'jquery',
  'lodash',
  'friends',
  'chips',
  'uber',
  'music',
  'records',
  'pillow',
  'aGift'
], function($, _, drinks, friends, cars, music, records, pillow, aGift) {
  $.get('/parties').then(_.filter(party, goodOnes));
});
```

```
var $ = require("jquery");

module.exports = function() {
  $("body").html("This looks ways better!");
}


```

it just works

2. Easy to add ES6 support

```
// webpack.config.js
loaders: [ {
  test: /\.js$/,
  exclude: /node_modules/,
  loader: "babel-loader"
} ]
```

```
// .babelrc
{ presets: ["es2015"] }
```

```
// imports
import $ from "jquery";

// template literals
const text = `
  multi-line strings
  are the best
`;

// export, let and arrow functions
export let squares = [1, 2, 3].map(x => x * x);
```

5to6-codemod

A collection of [codemods](#) that allow you to transform your js code from ES5 to ES6 using [jscodeshift](#).

Usage

1. `npm install -g jscodeshift`
2. `npm install 5to6-codemod`
3. `jscodeshift -t node_modules/5to6-codemod/transforms/[transform].js [files]`
4. Review changes via `git diff`. Keep what you want, throw it out if you don't. Magic!

Transforms

- `amd` - Transforms AMD style modules to ES6 `import / export`
- `cjs` - Transforms CommonJS style `require()` calls to ES6 `import` statements
- `no-strict` - Removes "use strict" statements
- `exports` - Move CommonJS style `module.exports` statements to ES6 `export` statements
- `let` - Replace all `var` calls to use `let`

3. Let NPM manage dependencies

Update Config

```
resolve: {  
  alias: {  
    - backbone: "lib/backbone-1.1.0",  
    - jquery: "lib/jquery-1.10.2",  
    - underscore: "lib/lodash.underscore-2.3.0",  
    jqueryUI: "lib/jquery-ui.min"  
  },  
  - modulesDirectories: ["public/js"]  
  + modulesDirectories: ["public/js", "node_modules"]  
}
```

Install NPM Modules

- > `npm install backbone jquery underscore`
- Easy to get updates to your libraries
- Discourages re-inventing the wheel
- Encourages sharing/modularity

NPM is the

information superhighway

of JavaScript

4. Piles of cool plugins

```
// webpack.config.js

loaders: [{

// test: /\.js$/,
// exclude: /node_modules/,
// loader: "babel-loader"
}, {

test: /\.js$/,
loader: "eslint-loader",
exclude: /node_modules/
} ]
```

ESLint

The pluggable linting utility for JavaScript and JSX

[Get Started »](#)

Welcome

ESLint is an open source project originally created by [Nicholas C. Zakas](#) in June 2013. Its goal is to provide a pluggable linting utility for JavaScript.

Latest News

ERROR in ./public/js/app.js

/Users/jamuferguson/dev/webpack-test/public/js/app.js

4:1 error 'help' is not defined no-undef

* 1 problem (1 error, 0 warnings)

ERROR in ./public/js/util.js

/Users/jamuferguson/dev/webpack-test/public/js/util.js

14:5 error Unexpected console statement no-console

* 1 problem (1 error, 0 warnings)

5. Excellent Debugging

```
~/dev/webpack-test (master) $ webpack --display-modules
```

```
Hash: c6a6fae6a556c7c3fadd
```

```
Time: 107ms
```

webpack --display-modules

Asset	Size	Chunks	Chunk Names
main.built.js	344 kB	0	[emitted] main
1.1.built.js	5.86 kB	1	[emitted]
main.built.js.map	424 kB	0	[emitted] main
1.1.built.js.map	5.21 kB	1	[emitted]
[0] ./public/js/app.js	153 bytes	{0}	[built]
[1] ./public/js/vendor/jquery-1.10.2.js	273 kB	{0}	[built]
[2] (webpack)/buildin/module.js	251 bytes	{0}	[built]
[3] ./public/js/util.js	316 bytes	{0}	[built] [1 warning]
[4] ./public/js/extra.js	62 bytes	{0}	[built]
[5] ./~/underscore/underscore.js	52.9 kB	{0}	[built]
[6] ./public/js/templates ^\.\.*\\$	350 bytes	{1}	[built]
[7] ./public/js/templates/a.js	140 bytes	{1}	[optional] [built]
[8] ./public/js/templates/b.js	140 bytes	{1}	[optional] [built]
[9] ./public/js/templates/c.js	140 bytes	{1}	[optional] [built]
[10] ./public/js/templates/d.js	140 bytes	{1}	[optional] [built]

```
~/dev/webpack-test (master) $ webpack --display-modules  
Hash: c6a6fae6a556c7c3fadd  
Version: webpack 1.12.14  
Time: 1607ms
```

Asset	Size	Chunks	Chunk Names
main.built.js	344 kB	0	[emitted] main
1.1.built.js	5.86 kB	1	[emitted]
main.built.js.map	424 kB	0	[emitted] main
1.1.built.js.map	5.21 kB	1	[emitted]
[0] ./public/js/app.js	153 bytes	{0} [built]	
[1] ./public/js/vendor/jquery-1.10.2.js	273 kB	{0} [built]	
[2] (webpack)/buildin/module.js	251 bytes	{0} [built]	
[3] ./public/js/util.js	316 bytes	{0} [built]	[1 warning]
[4] ./public/js/extra.js	62 bytes	{0} [built]	
[5] ./~/underscore/underscore.js	52.9 kB	{0} [built]	
[6] ./public/js/templates ^\.\V.*\$	350 bytes	{1} [built]	
[7] ./public/js/templates/a.js	140 bytes	{1} [optional]	[built]
[8] ./public/js/templates/b.js	140 bytes	{1} [optional]	[built]
[9] ./public/js/templates/c.js	140 bytes	{1} [optional]	[built]
[10] ./public/js/templates/d.js	140 bytes	{1} [optional]	[built]

~/dev/webpack-test (master) \$ webpack --verbose --display-modules

Hash: c6c6f6e6a55c7c3fc
Version: webpack 1.12.14

Time: 1398ms

webpack --display-modules --verbose

Asset	Size	Chunks	Chunk Names
main.built.js	344 kB	0	[emitted] main
1.1.built.js	5.86 kB	1	[emitted]
main.built.js.map	424 kB	0	[emitted] main
1.1.built.js.map	5.21 kB	1	[emitted]
[0] ./public/js/app.js	153 bytes	{0} [built]	
[1] ./public/js/vendor/jquery-1.10.2.js	273 kB	{0} [built]	
amd require jquery	[0] ./public/js/app.js	4:0-7:2	
[2] (webpack)/buildin/module.js	251 bytes	{0} [built]	
cjs require module	[1] ./public/js/vendor/jquery-1.10.2.js	1:0-60	
[3] ./public/js/util.js	316 bytes	{0} [built]	[1 warning]
amd require util	[0] ./public/js/app.js	4:0-7:2	
[4] ./public/js/extra.js	62 bytes	{0} [built]	
amd require extra	[3] ./public/js/util.js	4:0-18:2	

```
~/dev/webpack-test (master) $ webpack --verbose --display-modules  
Hash: c6a6fae6a556c7c3fadd  
Version: webpack 1.12.14  
Time: 1398ms
```

Asset	Size	Chunks	Chunk Names
main.built.js	344 kB	0	[emitted] main
1.1.built.js	5.86 kB	1	[emitted]
main.built.js.map	424 kB	0	[emitted] main
1.1.built.js.map	5.21 kB	1	[emitted]
[0] ./public/js/app.js	153 bytes	{0} [built]	
[1] ./public/js/vendor/jquery-1.10.2.js	273 kB	{0} [built]	
amd require jquery	[0] ./public/js/app.js	4:0-7:2	
[2] (webpack)/buildin/module.js	251 bytes	{0} [built]	
cjs require module	[1] ./public/js/vendor/jquery-1.10.2.js	1:0-60	
[3] ./public/js/util.js	316 bytes	{0} [built]	[1 warning]
amd require util	[0] ./public/js/app.js	4:0-7:2	
[4] ./public/js/extra.js	62 bytes	{0} [built]	
amd require extra	[3] ./public/js/util.js	4:0-18:2	

Why the hate?



Philip Davis @PhilADavis · Feb 16

Had high hopes for **webpack** but it was very disappointing. Too many errors and WTF moments on a non-trivial app. Back to Gulp, I think.



•••

**Sebastian McKenzie**

@sebmck



Following

Trying really had to like Webpack but the lack of insight into when you mess up your config is maddening.

RETWEETS

8

LIKES

45

2:40 AM - 14 Feb 2016



...



Daniel Dunderfelt @ddunderfelt · Feb 14

@sebmck **Webpack** rule of thumb: once you got your working config through blood, sweat and tears, DO NOT TOUCH IT EVER AGAIN!



...

[View conversation](#)



Jon Kuperman and 1 other liked



Ben Vinegar @bentlegen · Feb 15

after hours of fiddling, i got **webpack** to do what i want



1



12

...

tips to not

hate webpack

Use a Config Validator

Webpack Validator

Use this to save yourself some time when working on a webpack configuration.

npm v1.0.0-beta.6 | downloads 2k/month | license MIT | PRs welcome

BETA: This is currently in beta and is a work in progress

Simply do:

```
var validateWebpackConfig = require('webpack-validator')
var config = { /* ... */ }
module.exports = validateWebpackConfig(config)
```

And you'll get helpful error and warning messages telling you when you've got something wrong.

Installation

```
npm install --save-dev webpack-validator
```

Get to Know Source Maps

Pay or send money to anyone

Send money to anyone with an email address or mobile number and it will go to their PayPal account. If they don't have an account, they can create one in seconds, for free.



C. Fletcher M. Colbeci S. Jhaveri T. Stark G. Feffer... H. Mino... M. Bell S. Tiruka...

Elements Console Sources Network Timeline Profiles Resources Security Audits React

Sources Content scripts Snippets

- > (no domain)
- > localhost.paypal.com:8000
 - ▼ myaccount/transfer
 - css
 - ▼ js/apps
 - app.js
 - templates/US/en
 - (index)
 - webpack://
 - (webpack)/buildin
 - .
 - Users/jamuferguson/dev/paypal/p2pnodeweb/~
 - public/js
 - www.paypalobjects.com

```
 33      });
 34  },
 35  getDefaultProps: function getDefaultProps() {
 36    return {
 37      locales: [locale]
 38    };
 39  },
 40  i18n: function i18n(message, data) {
 41    var formattedMessage = undefined;
 42
 43    // languagepack has not been loaded yet
 44    if (!this.messages) {
 45      return '';
 46    }
 47    this.context.messages = this.messages; // TODO: find a better way to get these in here
 48
 49    // try to load the formatted message with a graceful fallback
 50    try {
 51      formattedMessage = this.getIntlMessage(message);
 52    }
 53  }
}
```

Line 52, Column 1

- ▶  (no domain)
- ▼  localhost.paypal.com:8000
 - ▼  myaccount/transfer
 - ▶  css
 - ▶  js/apps
 - ▶  templates/US/en
 -  (index)
 - ▼  webpack://
 - ▶  (webpack)/buildin
 - ▶  .
 - ▶  Users/jamuferguson/dev/paypal/p2pnodeweb/~
 - ▶  public/js
- ▶  www.paypalobjects.com

- ▶  (no domain)
- ▼  localhost.paypal.com:8000
 - ▼  myaccount/transfer
 - ▶  css
 - ▼  js/apps
 -  app.js
 - ▶  templates/US/en
 -  (index)

- ▼  webpack://
 - ▶  (webpack)/buildin
 - ▶  .
 - ▶  Users/jamuferguson/dev/paypal/p2pnodeweb/~
 - ▼  public/js
 - ▶  calculator/components
 - ▶  collection

Remember This

- keep your config as simple as possible
- avoid writing webpack-specific code
- no need to get rid of gulp/grunt

Thank You

@xjamundx

Appendix

webpack?

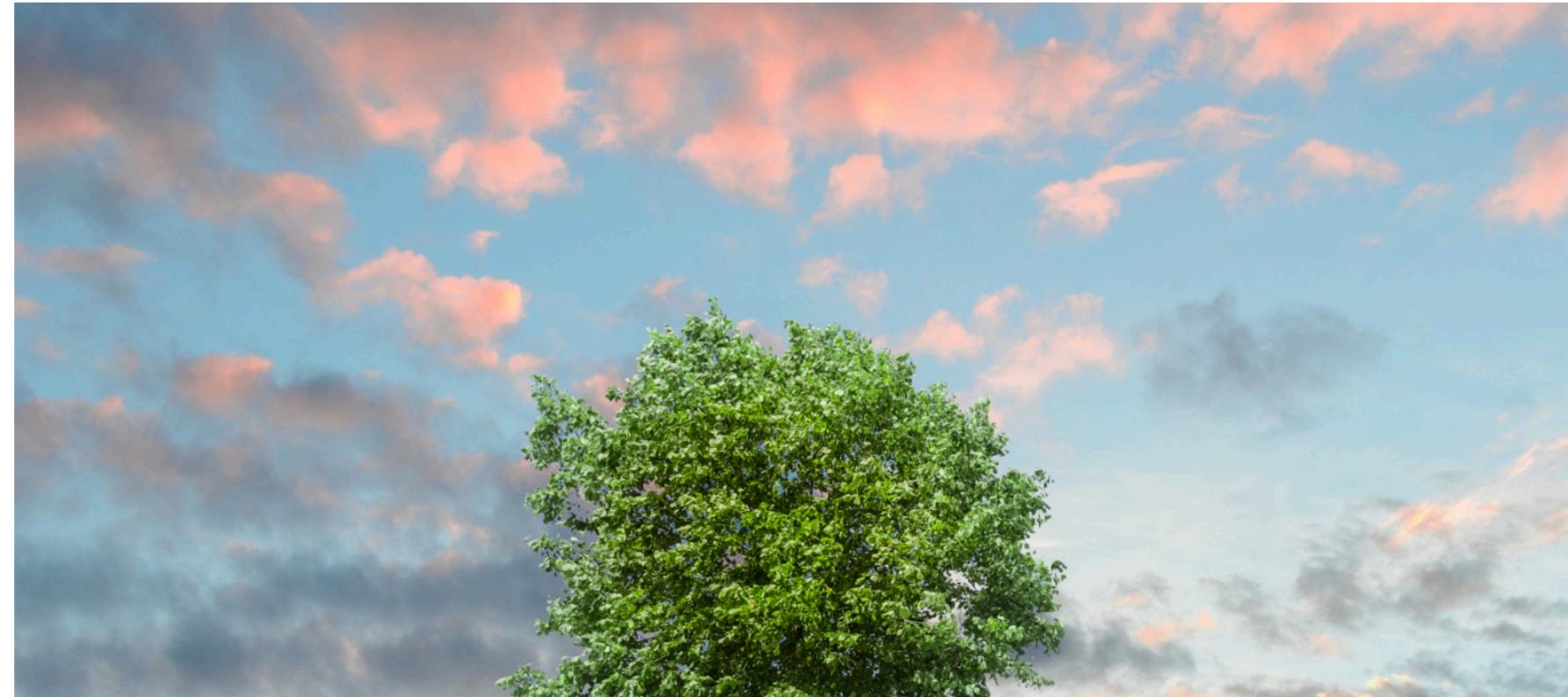
- Coming soon
- Adds "tree shaking" which will optimize ES6 modules
- Replaces `require.ensure()` with `System.import()` syntax for dynamically requiring modules
- Some changes to `loader` and `resolve` config



Grgur Grisogono
Feb 15 · 3 min read

Webpack 2 Tree Shaking Configuration

Tree Shaking, a modern *dead code elimination* algorithm for ECMAScript 2015+ is one of the most anticipated features in the upcoming Webpack 2. By eliminating unused ES6 exports, Webpack can further help the minification process to get your bundle much smaller than ever before.



103



1



Grgur Grisogono · Follow



sokra / webpack-2.md SECRET

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279

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8



Code

Revisions 19

Stars 279

Forks 8

Embed ▾

<script src="https://gist



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What's new in webpack 2

webpack-2.md

Raw

What's new in webpack 2

Work in progress... This reflects stuff until 2.0.5-beta+

Major changes

ES6 Modules

webpack 2 brings native support ES6 Modules. This means webpack now understands `import` and `export` without them being transformed to CommonJS:

```
import { currentPage, readPage } from "./book";

currentPage === 0;
readPage();
currentPage === 1;
```

Async Requires

```
// async require with known path works great
require(["templates/a"], function(view) {
  // this will work
})

// async require with a variable path has problem
require(["templates/" + template], function(myFile) {
  // this will bundle all the things
})
```

```
~/dev/webpack-test (master) $ webpack
```

```
Hash: 5ee6f5ca2ffbb8a95fb0
```

```
Version: webpack 1.12.14
```

```
Time: 646ms
```

Asset	Size	Chunks	Chunk Names
main.built.js	289 kB	0	[emitted]
1.1.built.js	5.83 kB	1	[emitted]
main.built.js.map	361 kB	0	[emitted]
1.1.built.js.map	5.18 kB	1	[emitted]
[0] ./public/js/app.js	161 bytes	{0}	[built]
[1] ./public/js/vendor/jquery-1.10.2.js	273 kB	{0}	[built]
[3] ./public/js/util.js	312 bytes	{0}	[built]
[4] ./public/js/templates ^\.\.\.*\$	350 bytes	{1}	[built]
[5] ./public/js/templates/a.js	139 bytes	{1}	[optional] [built]
[6] ./public/js/templates/b.js	139 bytes	{1}	[optional] [built]
[7] ./public/js/templates/c.js	139 bytes	{1}	[optional] [built]
[8] ./public/js/templates/d.js	139 bytes	{1}	[optional] [built]
[9] ./public/js/templates/e.js	139 bytes	{1}	[optional] [built]
[10] ./public/js/templates/f.js	139 bytes	{1}	[optional] [built]
[11] ./public/js/templates/g.js	139 bytes	{1}	[optional] [built]
[12] ./public/js/templates/h.js	139 bytes	{1}	[optional] [built]
[13] ./public/js/templates/i.js	139 bytes	{1}	[optional] [built]
[14] ./public/js/templates/j.js	139 bytes	{1}	[optional] [built]
+ 1 hidden modules			

Smaller Dynamic Bundles

```
switch (template) {  
  case "a":  
    require("templates/a", showView);  
    break;  
  case "b":  
    require("templates/b", showView);  
    break;  
  // ...  
}
```

```
~/dev/webpack-test (master) $ webpack
```

```
Hash: b564004adab3aec2aff4
```

```
Version: webpack 1.12.14
```

```
Time: 627ms
```

Asset	Size	Chunks	Chunk Names
main.built.js	289 kB	0	[emitted] main
1.1.built.js	555 bytes	1	[emitted]
main.built.js.map	361 kB	0	[emitted] main
1.1.built.js.map	496 bytes	1	[emitted]
[0] ./public/js/app.js	161 bytes	{0}	[built]
[1] ./public/js/vendor/jquery-1.10.2.js	273 kB	{0}	[built]
[3] ./public/js/util.js	304 bytes	{0}	[built]
[4] ./public/js/templates/a.js	139 bytes	{1}	[built]
+ 1 hidden modules			

This one is 100x smaller!

```
~/dev/webpack-test (master) $ webpack  
Hash: b564004adab3aec2aff4  
Version: webpack 1.12.14  
Time: 627ms
```

Asset	Size	Chunks	Chunk Names
<u>main.built.js</u>	289 kB	0	[emitted] main
1.1.built.js	555 bytes	1	[emitted]
main.built.js.map	361 kB	0	[emitted] main
1.1.built.js.map	496 bytes	1	[emitted]
[0] ./public/js/app.js	161 bytes	{0}	[built]
[1] ./public/js/vendor/jquery-1.10.2.js	273 kB	{0}	[built]
[3] ./public/js/util.js	304 bytes	{0}	[built]
[4] ./public/js/templates/a.js	139 bytes	{1}	[built]
+ 1 hidden modules			