

AUTOMATING FRONT-END WORKFLOW

WITH YEOMAN

@addyosmani

TOKYO, Oct 2013.

**The front-end tooling landscape
is getting more complex.**

Boilerplate Abstractions

Frameworks Testing Docs

Workflow Dependency

management Performance

optimization Build

Continuous Integration

Deployment Version control

**Automate repetitive tasks
to stay effective.**

**The average front-end
workflow today**

Setup

Scaffolding

Download **libraries**

Download **templates**

Download **frameworks**

Develop

Watch Sass / Less / Stylus

Watch CoffeeScript

Watch Jade / Haml

LiveReload

JS / CSS Linting

Code linting

Running unit tests

Compile everything

Minify and concatenate

Generate images / icons

Optimize performance

HTTP Server

Deployment

Build

**This workflow can be
automated.**

YEOMAN



YO



GRUNT



Bower

Scaffold, write less with Yo
Build, preview and test with Grunt
Manage dependencies with Bower



GRUNT

Helps run *repetitive tasks.*

Alternative to Rake/Cake/Make/Ant

Linting
Compiling
Minification
Testing
Conversion
Documentation
Deployment
And more

Huge ecosystem.

Plugins - Grunt: The JavaScript Build Tool

gruntjs.com/plugins

Getting Started Plugins Documentation

Grunt Plugins

This plugin listing is automatically generated from the npm module database. Officially maintained plugins are marked with a star ★ icon and are shown at the top of every search by default.

In order for a Grunt plugin to be listed here, it must be published on [npm](#) with the `gruntplugin` keyword. We recommend that you use the [gruntplugin grunt-init template](#) when creating a Grunt plugin.

Plugin	Description	Status
contrib by Grunt Team	The entire grunt-contrib suite.	Modified Grunt Team
contrib-clean by Grunt Team	Clean files and folders.	Modified Grunt Team
contrib-coffee by Grunt Team	Compile CoffeeScript files to JavaScript.	Modified Grunt Team

Plugins

Search Grunt Plugins

Sort plugins list by

Title

Show contrib plugins first

Fantastic for simple and complex projects.



touch package.json Gruntfile.js

package.json

Specify Grunt plugins and metadata.

```
{  
  "name": "awesome-app",  
  "version": "0.0.1",  
  "devDependencies": {  
    "grunt": "~0.4.1",  
    "grunt-contrib-jshint": "~0.6.3",  
    "grunt-contrib-uglify": "~0.2.0"  
  }  
}
```

Gruntfile.js

Config tasks and load plugins

```
module.exports = function(grunt){  
  grunt.initConfig({  
    uglify: {  
      build: {  
        src: 'app.js',  
        dest: 'build/app.min.js'}  
    },  
    jshint: { all: ['**/*.js'] }  
  });  
  
  grunt.loadNpmTasks('grunt-contrib-uglify');  
  grunt.loadNpmTasks('grunt-contrib-jshint');  
  grunt.registerTask('default', ['jshint', 'uglify']);  
};
```

```
$ npm install -g grunt-cli
```

\$ npm install

```
$ grunt
```

Running "jshint:all" (jshint) task

Running "uglify:build" (uglify) task

Done.

A close-up photograph of a man's face. He has a surprised or shocked expression, with wide eyes and a slightly open mouth. His gaze is directed upwards and to the left. The background is dark and out of focus.

Not bad!

```
$ npm install grunt-<taskname> --save-dev
```

Grunt Pagespeed

```
$ grunt pagespeed
Running "pagespeed:prod" (pagespeed) task
>>
>> -----
>>
>> URL: https://developers.google.com/speed/docs/insights/v1/getting_started
>> Score: 91
>>
>> -----
>>
>> Number Resources | 39
>> Number Hosts | 12
>> Total Request Bytes | 5725
>> Number Static Resources | 27
>> Html Response Bytes | 113473
>> Css Response Bytes | 312812
>> Image Response Bytes | 279482
>> Javascript Response Bytes | 1150791
>> Other Response Bytes | 93516
>> Number Js Resources | 16
>> Number Css Resources | 4
>>
>> -----
>>
>> Avoid Bad Requests | 100
>> Avoid Charset In Meta Tag | 100
>> Avoid Css Import | 100
>> Avoid Landing Page Redirects | 100
>> Avoid Long Running Scripts | 100
>> Defer Parsing Java Script | 21
>> Enable Gzip Compression | 100
>> Inline Small Css | 100
>> Inline Small Java Script | 100
>> Leverage Browser Caching | 44
>> Minify Css | 100
>> Minify HTML | 98
>> Minify Java Script | 98
>> Minimize Redirects | 74
>> Minimize Render Blocking Resources | 100
>> Minimize Request Size | 100
>> Optimize Images | 98
>> Optimize The Order Of Styles And Scripts | 100
>> Prefer Async Resources | 100
>> Prioritize Visible Content | 100
```

task tip

grunt-responsive-images

Create multi-resolution images from
a directory for **src-set/srcN**

bit.ly/grunt-resp

task tip

grunt-contrib-imagemin

Lower page-weight by applying
optimizations to JPG/PNG/Gif

bit.ly/grunt-image

Build directly from *DevTools*

grunt-devtools extension

Developer Tools - https://chrome.google.com/webstore/detail/fbiodiodggnlakggeeckjccjhjndnb/publish-accepted?hl=en

The screenshot shows the Chrome Developer Tools interface with the "Grunt" tab selected in the top navigation bar. Below the tabs, there are sections for "PROJECTS" and "ALIAS TASKS". The "ALIAS TASKS" section lists several Grunt tasks: build, default, dev, test, and serve. The "build" task is currently active, indicated by a yellow circle with a 'V' icon next to it. The "serve" task has a red circle with a 'F' icon next to it. The "TASKS" section lists all available Grunt tasks: clean, jshint, concat, watch, less, jade, copy, devtools, nodeunit, and blog. The "clean" task is also marked with a yellow 'V' icon. The main pane displays the command-line output of the "gruntjs.com" project, showing the execution of various tasks like "clean", "jshint", "concat", and "less". The output ends with the message "Done, without errors."

Elements Resources Network Sources Timeline Profiles Audits Console Grunt AngularJS

PROJECTS grunt-contrib-imagemin jquery gruntjs.com

ALIAS TASKS

- build
- default
- dev
- test
- serve

TASKS

- clean V
- jshint
- concat F
- watch
- less
- jade
- copy
- devtools
- nodeunit
- blog

```
13:18:50 - + plugins
13:18:50 - Loading "server.js" tasks...
13:18:50 - OK
+ server
Loading "Gruntfile.js" tasks...
13:18:50 - OK
+ build, default, dev, serve, test

13:18:50 - Running tasks: clean
13:18:50 -
Running "clean" task

Running "clean:build" (clean) task
Verifying property clean.build exists in config...OK
Files: build/ -> build
13:18:50 - Options: force=false
13:18:50 - Cleaning "build/"...Deleting build/...
13:18:50 - OK
13:18:50 - OK

Running "clean:tmp" (clean) task
Verifying property clean.tmp exists in config...
13:18:50 - OK
Files: tmp/ -> tmp
Options: force=false
Cleaning "tmp/"...
13:18:50 - Deleting tmp/...
13:18:50 - OK
13:18:50 - OK
13:18:50 -
Done, without errors.
```

A *first look* at something new I've
been hacking on

grunt-uncss

Remove unused CSS across your project at build time.

bit.ly/uncss

A few weeks ago..



Dion Almaer

@dalmaer



Following

"1186 rules (91%) of CSS not used by the current page."

When bootstrap is used for convenience in "overkill" mode.

Reply Retweet Favorite Buffer More

82
RETWEETS

38
FAVORITES



12:51 PM - 9 Sep 13

Reply to @dalmaer



Hichem Ben Chaabene @benchaaben

9 Sep

@dalmaer the second reason why bootstrap is a piece of shit

Details



Gene Loparco @gloparco

9 Sep

**Get audits for unused CSS in
your page with DevTools**

Chrome DevTools Audits

The screenshot shows a web browser window with the URL `getbootstrap.com/examples/offcanvas/`. The main content area displays a "Hello, world!" heading and a sidebar with three links. The browser's address bar shows "Off Canvas Template for B". The DevTools Audits tab is selected in the bottom navigation bar.

Audits Results: http://getbootstrap.co... (highlighted)

Network Utilization:

- ▶ Combine external JavaScript (7)
- ▶ Enable gzip compression (7)
- ▶ Leverage browser caching (13)
- ▶ Minimize cookie size

Web Page Performance:

- ▶ Remove unused CSS rules (1140)
 - 1140 rules (89%) of CSS not used by the current page.
 - ▶ [bootstrap.min.css](#): 90% is not used by the current page.
 - ▶ [offcanvas.css](#): 38% is not used by the current page.

**grunt-uncss can remove
unused CSS at *build time***

The screenshot shows a Mac OS X desktop environment. In the foreground, a web browser window is open to 'index.html' at 'file:///Users/addyo/projects/grunt-uncss/dist/index.html'. The page displays a dark-themed navigation bar with 'Project name' (highlighted), 'Home', 'About', and 'Contact' links. Below the navigation, a large 'Hello, world!' heading is centered. A paragraph of text follows, mentioning offcanvas layout patterns in Bootstrap. Two 'Heading' sections with placeholder text are shown below. In the background, a terminal window titled '1. /Users/addyo? (bash)' is visible, displaying a command-line session related to the project.

index.html

file:///Users/addyo/projects/grunt-uncss/dist/index.html

Project name Home About Contact

Hello, world!

This is an example to show the potential of an offcanvas layout pattern in Bootstrap. Some responsive-range viewport sizes to see it in action.

Heading

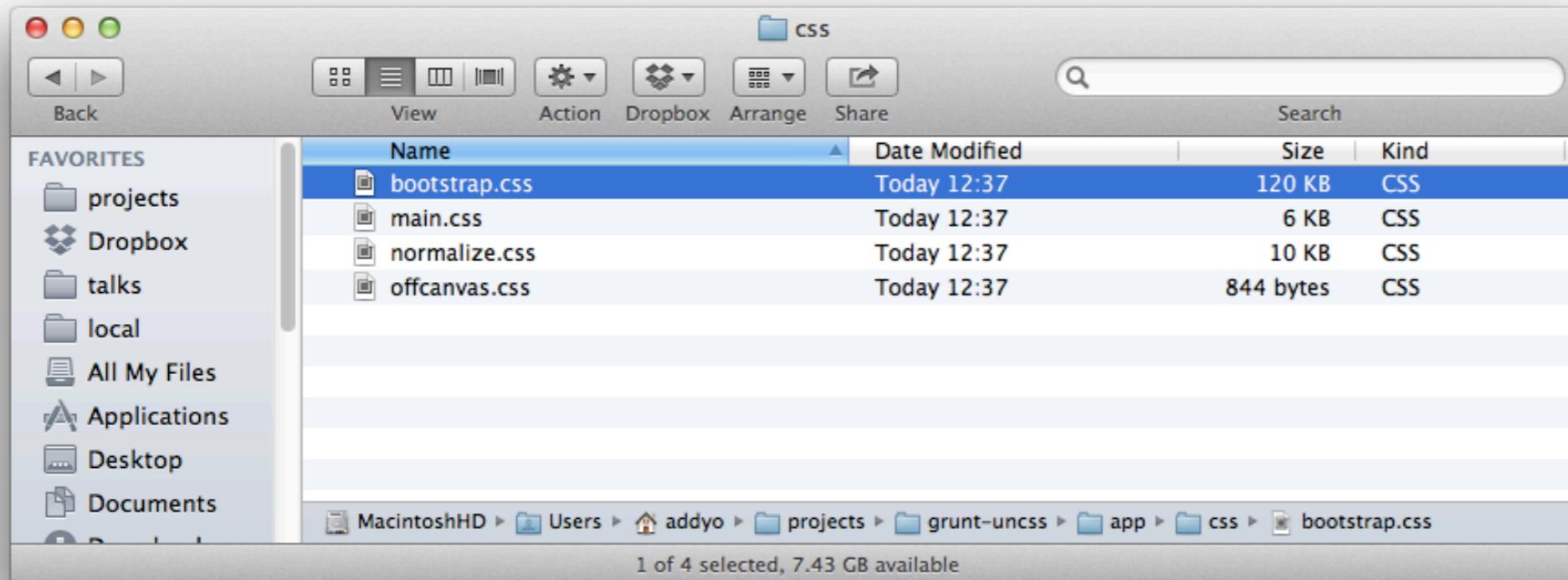
Donec id elit non mi porta gravida at eget metus. Fusce dapibus, tellus ac cursus commodo, tortor mauris condimentum nibh, ut fermentum massa justo sit amet risus. Etiam porta

Heading

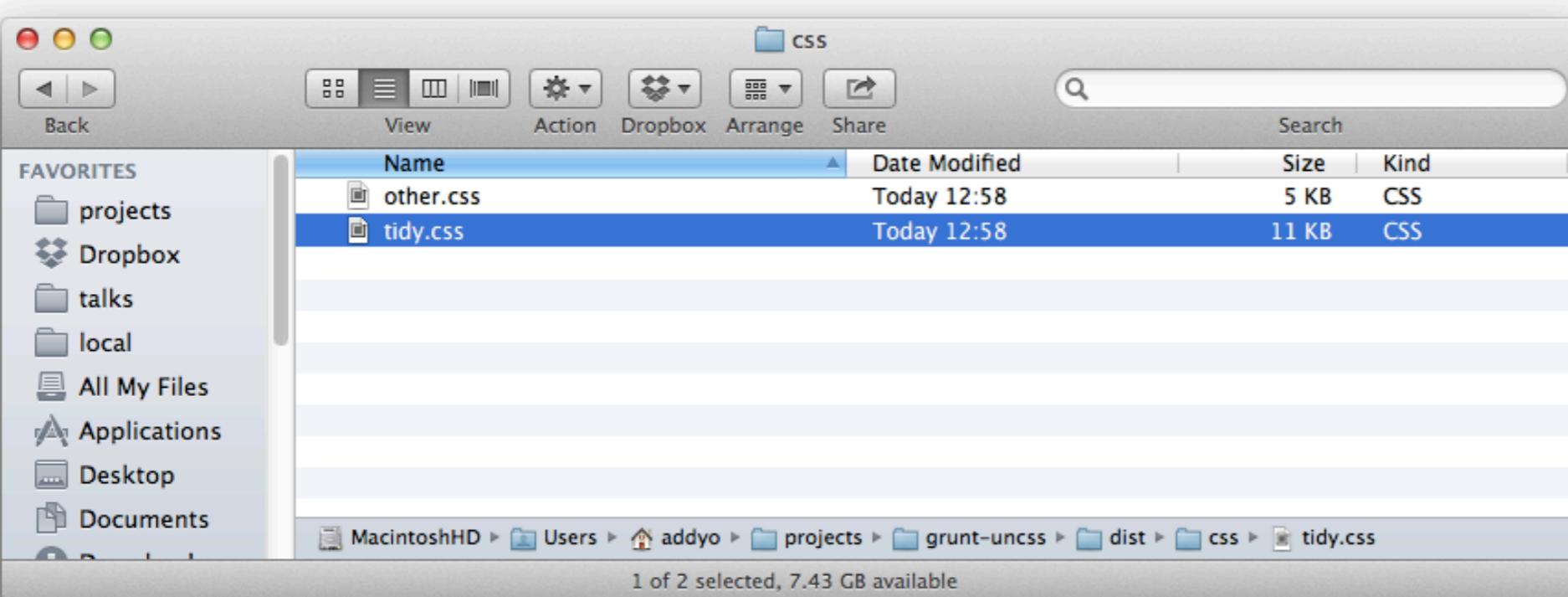
Donec id elit non mi porta gravida at eget metus. Fusce dapibus, tellus ac cursus commodo, tortor mauris condimentum nibh, ut fermentum massa justo sit amet risus. Etiam porta

```
addyo at addyo-macbookair3 in ~/projects/grunt-uncss
on master*
$ du -s app/css
288    app/css
addyo at addyo-macbookair3 in ~/projects/grunt-uncss
on master*
$ du -s dist/css
40    dist/css
addyo at addyo-macbookair3 in ~/projects/grunt-uncss
on master*
$ 
```

What about Bootstrap alone?



120KB



11KB



Bower

A package manager for the web.

The old way of doing things.

1. That lib is 6 months old? Better update.
2. Open up the site
3. Download the lib
4. Copy from ~/Downloads
5. Paste to app folder
6. Wire in with script tags

New hotness.

```
$ npm install -g bower
```

\$ bower search

```
$ bower search angular
```

Search results:

angular git://github.com/angular/bower-angular.git

angular-mocks git://github.com/angular/bower-angular-mocks.git

angular-resource git://github.com/angular/bower-angular-resource.git

angular-cookies git://github.com/angular/bower-angular-cookies.git

angular-sanitize git://github.com/angular/bower-angular-sanitize.git

angular-bootstrap git://github.com/angular-ui/bootstrapbower.git

.....

\$ bower install

```
$ bower install angular --save-dev
```

```
bower install angular#1.0.8
```

```
angular#1.0.8 app/bower_components/angular
```

\$ bower list

```
$ bower list
```

```
bower check-new  Checking for new versions of the project  
dependencies..
```

```
testapp#0.0.0 /Users/addyo/projects/testapp
```

```
  └── angular#1.0.8 (latest is 1.2.0-rc.3)
```

```
    ├── bootstrap#3.0.0
```

```
    |   └── jquery#1.9.1 (2.0.3 available)
```

```
    └── jquery#1.9.1 (latest is 2.0.3)
```

```
      └── modernizr#2.6.2
```

Runs over:

Git

HTTP(s)

Zip

npm

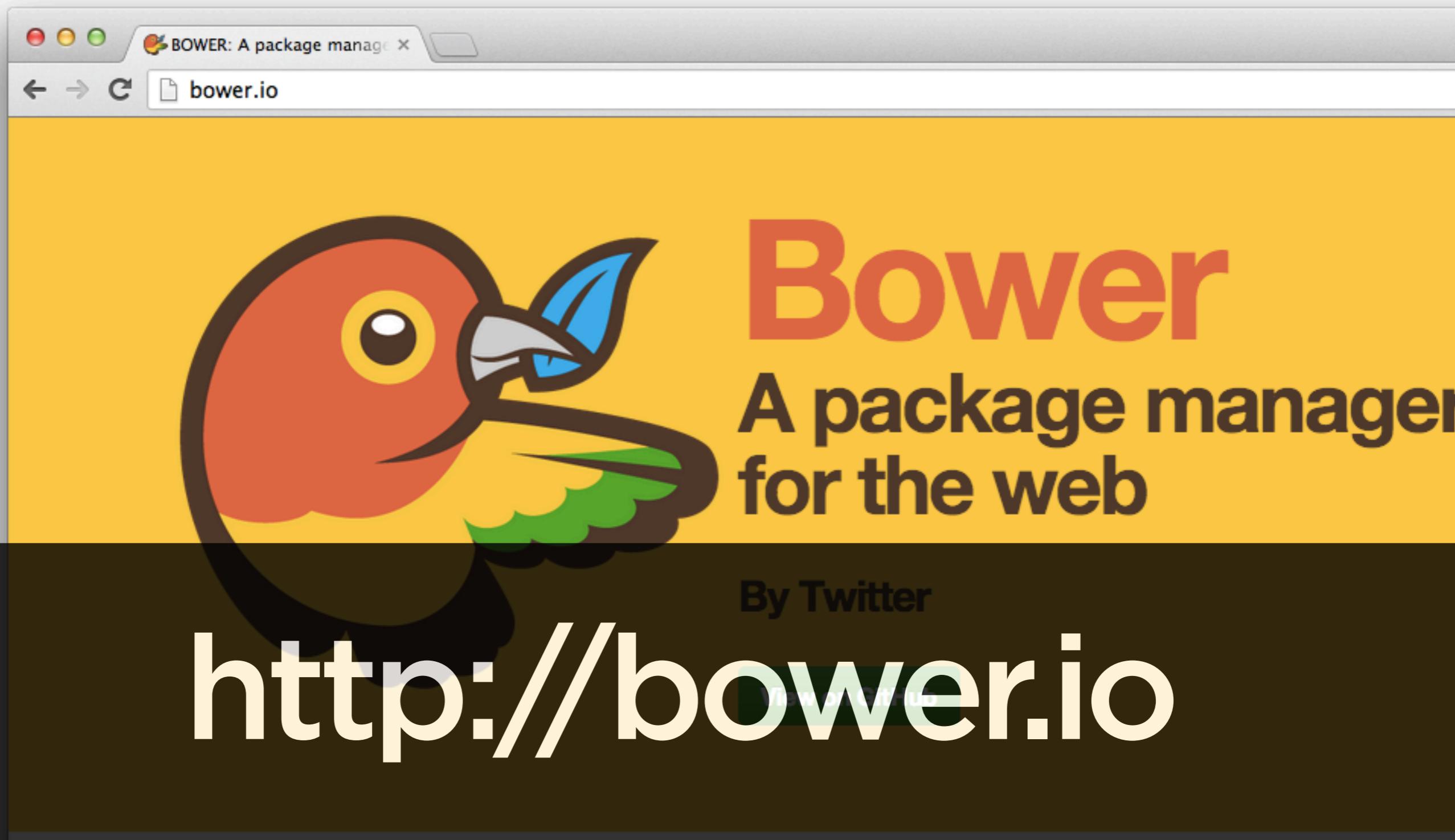
You can even **wire up deps**
from the command-line!



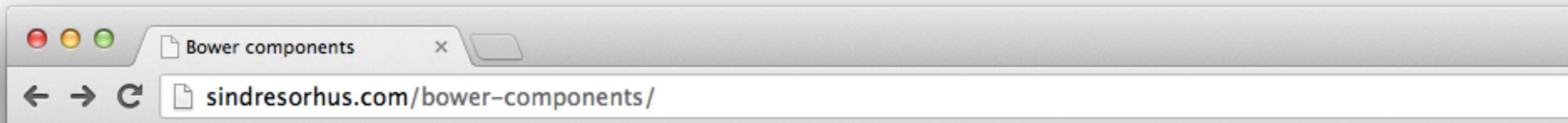
grunt-bower-install

bit.ly/grunt-bower

```
$ npm install grunt-bower-install --save-dev  
$ bower install jquery --save  
$ grunt bower-install
```



Bower is a package manager for the web. It offers a generic, unopinionated solution to the problem of [front-end package management](#) while exposing the package dependency model via an API that can be consumed by a more opinionated build stack. There are no cross-app dependencies, no dependencies are shared between different apps, and the dependency tree is flat.



Bower components

Discover Bower components

Featured components

[srcset](#) Parse and stringify the HTML srcset attribute

[detect-indent](#) Detect the indentation of code

[stringify-object](#) Stringify an object using a custom indentation

[devtools-detect](#) Detect if DevTools is open

[URl.js](#) URL mutation library

Hot components

[eq.js](#) Lightweight JavaScript powered

[viewports](#) _viewports.scss is a SASS microlibrary that makes it easier to manage media queries.

[strip-combining-marks](#)

Easily remove Unicode combining marks from strings.

[angular-lazyload](#)

A lazyload service for angular promises. On-demand support for `seajs/requirejs`.

[rotorama](#)

A simple, stunning, powerful jQuery UI

bit.ly/bowersearch

Search in 5130 components...

Name	Description	Owner	Created	Updated
twitter	Sleek, intuitive, and powerful front-end framework for faster and easier web development.	twbs	2 years ago	about 4 hours ago



YO

**Yo is your gateway to this
magical new world.**

It scaffolds out boilerplate.

Can prescribe helpful Grunt tasks.

**Can automatically install
dependencies you need.**



```
$ npm install -g yo
```

**This installs yo, grunt and bower
for you.**

```
$ yo
```

[?] What would you like to do?

› **Install a generator**

Run the Angular generator (0.4.0)

Run the Backbone generator (0.1.9)

Run the Blog generator (0.0.0)

Run the jQuery generator (0.1.4)

Run the Gruntfile generator (0.0.6)

(Move up and down to reveal more choices)

\$ yo

[?] What would you like to do? **Install a generator**

[?] Search NPM for generators: jquery

[?] Here's what I found. Install one?

› **generator-jquery-boilerplate**

generator-jquery-mobile

Search again

Return home

```
$ yo jquery-boilerplate
```

create .jshintrc

create CONTRIBUTING.md

create Gruntfile.js

create HISTORY.md

create boilerplate.jquery.json

create demo/index.html

create dist/jquery.boilerplate.js

create dist/jquery.boilerplate.min.js

create package.json

create src/jquery.boilerplate.coffee

create src/jquery.boilerplate.js

**Boom. You just created a jQuery
plugin.**

Installing a custom generator.

```
$ npm install generator-webapp -g
```

```
$ yo webapp
```

Out of the box I include H5BP and jQuery.

[?] What more would you like?

› Bootstrap for Sass

RequireJS

Modernizr

A screenshot of a web browser window titled "webapp". The address bar shows the URL "127.0.0.1:9000". The page content is a landing page for a web application. At the top, there is a navigation bar with three buttons: "Home" (highlighted in blue), "About", and "Contact". Below the navigation bar is a large, light-gray rectangular area containing the text "'Allo, 'Allo!" in a large, bold, black font. Underneath this, in a smaller gray font, is the text "Always a pleasure scaffolding your apps.". Below this text is a green button with the white text "Splendid!". At the bottom of the page, there are two sections: "HTML5 Boilerplate" with a description of it being a professional front-end template for building fast, robust, and adaptable web apps or sites, and "Bootstrap" with a description of it being a sleek, intuitive, and powerful mobile first front-end framework for faster and easier web development. At the very bottom of the page, there is a small note: "♥ from the Yeoman team".

webapp

127.0.0.1:9000

Home About Contact

'Allo, 'Allo!

Always a pleasure scaffolding your apps.

Splendid!

HTML5 Boilerplate

HTML5 Boilerplate is a professional front-end template for building fast, robust, and adaptable web apps or sites.

Bootstrap

Sleek, intuitive, and powerful mobile first front-end framework for faster and easier web development.

♥ from the Yeoman team

Boom. Just created a webapp!

Boilerplate - H5BP, Bootstrap, Modernizr

Abstractions - optionally Sass, CoffeeScript, grunt-bower-install available by default.

Performance optimization - optimize images, scripts, stylesheets, get lean Modernizr builds, concurrently run all of these tasks at build time.

Testing and build process - Mocha, Jasmine, PhantomJS

\$ grunt server

You can now edit and LiveReload!

Make changes. Save. Browser automatically refreshes.

The screenshot shows a web browser window titled "webapp" at the URL "127.0.0.1:9000". The page content includes a header with "Home", "About", and "Contact" links. Below the header is a large button with the text "'Allo, 'Allo!'". Underneath it, a green button says "Splendid!". The main content area features a heading "HTML5 Boilerplate" and a paragraph describing it as a professional front-end template for building fast, robust, and adaptable web apps or sites. At the bottom, there's a note from the Yeoman team.

The screenshot shows a code editor with the file "index.html" open. The code is a template for a web page. It includes a header section with navigation links for Home, About, and Contact. The main content section contains a heading "'Allo, 'Allo!', a lead paragraph about HTML5 Boilerplate, and a button labeled "Splendid!". Below this is a marketing section for HTML5 Boilerplate. The code editor interface shows a sidebar with project files like .htaccess, favicon, and Gruntfile.js, and a status bar at the bottom indicating "Line 37, Column 11" and "Spaces: 4".

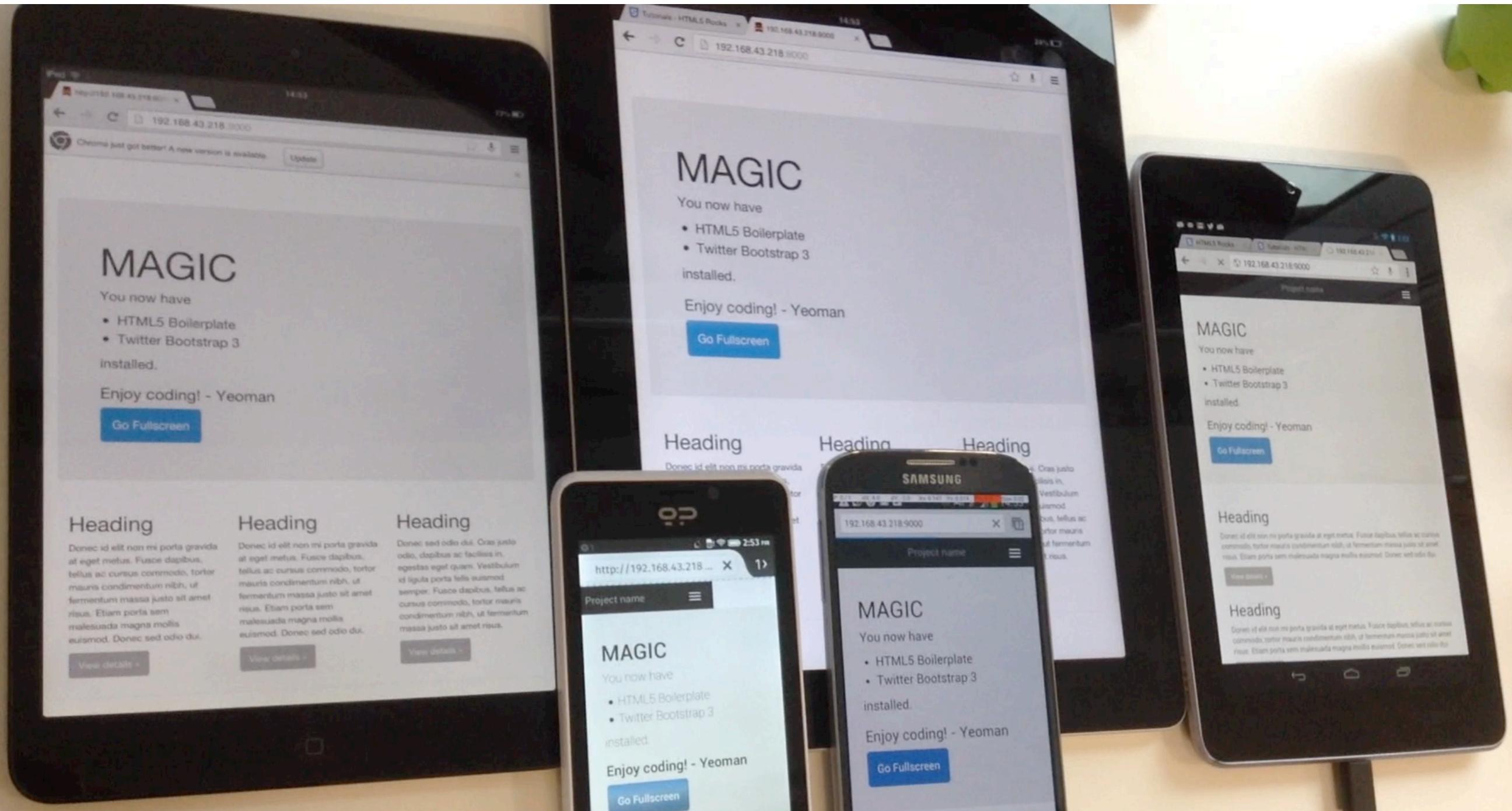
```
<div class="container">
  <div class="header">
    <ul class="nav nav-pills pull-right">
      <li class="active"><a href="#">Home</a></li>
      <li><a href="#">About</a></li>
      <li><a href="#">Contact</a></li>
    </ul>
    <h3 class="text-muted">webapp</h3>
  </div>
<div class="jumbotron">
  <h1>'Allo, 'Allo!</h1>
  <p class="lead">Always a pleasure scaffolding your apps.</p>
  <p><a class="btn btn-lg btn-success" href="#">Splendid!</a></p>
</div>

<div class="row marketing">
  <div class="col-lg-6">
    <h4>HTML5 Boilerplate</h4>
    <p>HTML5 Boilerplate is a professional front-end template for building fast, robust, and adaptable web apps or sites.</p>
  </div>
</div>
```

**Fantastic for getting a real-time
view of application state.**

Edits can also refresh all your devices. Instant real-device previews.

Cross-device live reload



bit.ly/gruntsync



What about frameworks?

```
$ npm install generator-angular -g
```

```
$ yo angular
```

[?] Would you like to include Bootstrap? (Y/n)

```
$ yo angular
```

[?] Would you like to include Bootstrap? (Y/n)

[?] Would you like to use the SCSS version?

```
$ yo angular
```

[?] Would you like to include Bootstrap? (Y/n)

[?] Would you like to use the SCSS version?

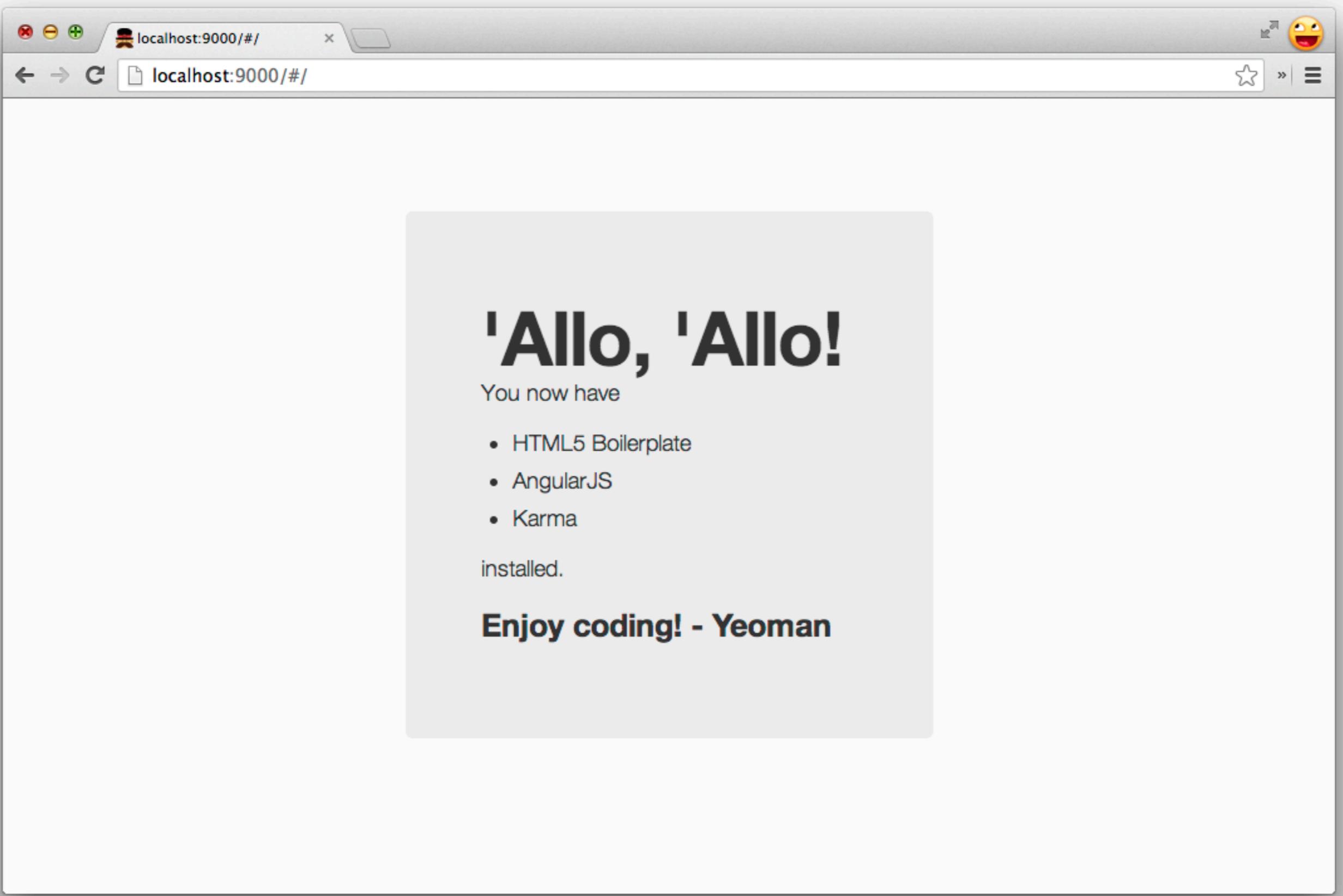
[?] Which modules would you like to include?

(Press <space> to select)

› angular-resource.js

angular-cookies.js

angular-sanitize.js



'Allo, 'Allo!

You now have

- [HTML5 Boilerplate](#)
- [AngularJS](#)
- [Karma](#)

installed.

Enjoy coding! - Yeoman

Generators also available for:

Polymer

Backbone

Ember

Flight

CanJS

& many other frameworks.

\$ yo chrome-extension

[?] What would you like to call this extension?

[?] How would you describe it?

[?] Would you like more UI Features?

➤ Options Page

Content Scripts

Omnibox

[?] Would you like to use permissions? (Press <space> to select)

➤ Tabs

Bookmarks

Cookies

History

Management

A screenshot of a web browser window titled "Yeoman - Modern workflow". The address bar shows "yeoman.io". The page features a large "YEOMAN" logo with a cartoon character wearing a top hat and holding a sword. Below it is the text "MODERN WORKFLOWS FOR MODERN WEBAPPS". To the right are icons for "YO", "GRUNT", and "BOWER". A large "http://yeoman.io" URL is displayed prominently. The left sidebar contains links for "Home", "Why Yeoman?", "Getting Started (1.0)" (with sub-links for About, Roadmap, Deployment, Support, Package Manager, and Articles), and "Generators" (with sub-links for Community Generators, Write Your First Generator, Get Help, and Reference Materials).

YEOMAN

MODERN WORKFLOWS FOR MODERN WEBAPPS

YO GRUNT BOWER

http://yeoman.io

YEOMAN 1.0

Yeoman 1.0 is more than just a tool. It's a workflow; a collection of tools and best practices working in harmony to make developing for the web even better.

Our workflow is comprised of three tools for improving your **productivity** and **satisfaction** when building a web app: *yo* (the scaffolding tool), *grunt* (the build tool) and *bower* (for package management).

- *Yo* scaffolds out a new application, writing your Grunt configuration and pulling in relevant dependencies so you can focus on what you might need for your build.

Generator search

YEOMAN GENERATORS

Search in 278 generators...

Name	Description	Author	Last
angular	AngularJS	yeoman	abo
mobile	mobile-first web apps	yeoman	abo
wordpress	WordPress	wesleytodd	abo
backbone	Backbone.js	yeoman	abo
webapp	Yeoman generator that scaffolds out a front-end web app	yeoman	abo
ember	Ember.js	yeoman	abo
yo-wordpress	Wordpress project	Romainberger	abo
chrome-extension	Chrome Extensions	yeoman	4 da
jekyllrb	Supercharge Jekyll development with Yeoman. Yo, Jekyllrb!	robwierzbowski	abo
marionette	Yeoman marionette generator a la AMD	mrichard	abo
firefox-os	Firefox OS apps	zenorocha	4 da

Work less. Do more.
Build awesome.



Thank you.