

Mastering webpack from the inside out

translate.it/CJAYG

TECHNICAL PROGRAM MANAGER

MICROSOFT - EDGE DEV TOOLS

MAINTAINER + ADVOCATE

WEBPACK

CORE TEAM

ANGULAR / ANGULAR-CLI

EVANGELIST

OPEN SOURCE SUSTAINABILITY



Oregon Dochio Ilivois Edana Youk of the Island (so smel!) Suth Carollio (Shaped weid) WHERE MOST PEOPLE THINK NEBRASKA IS ...



BACKGROUND

Former Tech Support Rep. gone rogue turned Software Engineer / Web Developer who got tired of never being able to really help the customer he served.

Languages: Ruby, Objective-C, Swift, Javascript.

Other: Woodworker, □ farmer, IoT



Objective

C-Programming





SUSTAINABLE OPEN SOURCE PRACTICES

JAVASCRIPT

BUILDING CONTRIBUTORS, COMMUNITY, AND ECOSYSTEM



Sean Larkin TheLarkInn

User Experience Developer @mutualofomaha. Javascript, Angular, Ruby, Webpack, Typescript, @webpack core team. @angular cli core team.

@mutualofomaha @webpack...

- ① Lincoln, NE
- https://careers.stackoverflow....

Organizations













Overview Repositories 164 Stars 150 Followers 413

Pinned repositories

Customize your pinned repositories

Following 53

≡ webpack/webpack

A bundler for javascript and friends. Packs many modules into a few bundled assets. Code Splitting allows to load parts for the application on demand. Through "loaders," modules can be CommonJs. AM...

JavaScript * 24k \$ 2.8k

≡ angular/angular-cli

CLI tool for Angular

■ TypeScript ★ 7.2k ¾ 1.4k

≡ angular-starter-es6-webpack

This is an Angular Starter App with component and service generators using gulp for easy component development. Uses Karma-Mocha-Chai as testing suite and Babel Loader and Webpack for ES6

JavaScript ★ 71 ¥ 49

≡ angular2-template-loader

Chain-to loader for webpack that inlines all html and style's in angular2 components.

JavaScript * 100 \$ 40

≡ webpack-developer-kit

webpack dev kit for writing custom plugins and loaders on the fly. Education/Exploration tool as well.

■ LazyParseWebpackPlugin

(v8-lazy-parse-webpack-plugin) This is a webpack plugin designed to exploit the V8 engines treatment of functions with parens wrapped around them. This lazy loads the parsing decreasing initial loa...

1,434 contributions in the last year

Contribution settings -



OTHELARKINN

<u>Github</u> - <u>Medium</u> - <u>Codepen</u> - <u>Stack Overflow</u> - <u>LinkedIn</u> - <u>Twitter</u>

ASK ME ANYTHING

http://github.com/thelarkinn/ama



Herrington Darkholme

HerringtonDarkholme

調月有栖

Follow

Block or report user

2 Rainbow Alliance

ShinNippori

Organizations



Popular repositories

yats.vim

Overview

Yet Another TypeScript Syntax: The most advanced TypeScript Syntax Highlighting in Vim

Repositories 108

Vim script ★ 198 ¥ 19

av-t

Followers 376

A modern, type-safe, idiomatic Vue binding library

Following 136

Gists 40

■ TypeScript ★ 189 🖞 16

typescript-repl

An upgraded TypeScript REPL

■ TypeScript ★ 146 💡 16

vue-advanced-programming

A collection of tricks in Vue

JavaScript ★ 68 ¥ 2

vue-ts-loader

Type-check your script in your vue-loader

JavaScript ★ 75 ¥ 10

Stars 857

kilimanjaro typed vuex 2.0

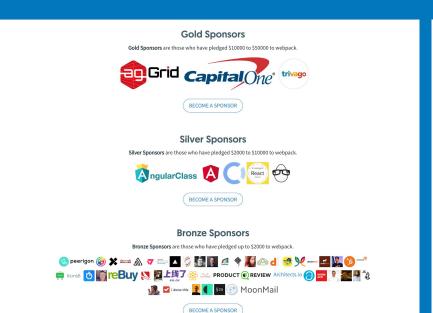
500 Mar.

■ TypeScript ★ 61 ¾ 4

951 contributions in the last year



SPONSORS 4 BACKERS



Backers

The following **Backers** are individuals who have contributed various amounts of money in order to help support webpack. Every little bit helps, and we appreciate even the smallest contributions.



"We've hired a lot of really great engineers who mentioned during their job interview that our sponsoring for Webpack was one of their primary motivations for applying and we've since moved to a Talent Community (https://talent.trivago.com/) where people can just sign up if they're interested in working at trivago in the future and where we can match those people with the right jobs.

We wanted to make it easier to apply for a job at trivago by taking away the burden of having to look through our advertised open positions.

At Talent Community, we see that a lot of our sign-ups are coming from links on the Webpack website, Github or Medium articles. This is something we didn't expect to happen but that is a major benefit for us as a tech company."





vue

We also accept [one-time donations via PayPal or crypto currencies](https://vuejs....

BACKER

Since September 2017

\$3,500

amount contributed



webpack

webpack is THE build solution for modern web applications.

BACKER

Since June 2017

\$2,780 amount contributed



Babel

Babel is a compiler for writing next generation JavaScript

BACKER

Since September 2017

\$700

amount contributed

DEAR NG-CONF...





Mastering webpack from the inside out

1.) Walk through the source

1.) Walk through the source 2.) Plugin Anatomy

1.) Walk through the source 2.) Plugin Anatomy 3. Ultimate Power

We Want your help!!!

Before 1 we begin...

What is Tapable?

What is Tapable? .~200 line plugin library

What is Tapable? .~200 line plugin library

. The backbone of the plugin system

```
Compiler.js
               ×
P
                                                                                compiler event
            Compiler.prototype.compile = function(callback) {
               var self = this;
               var params = self.newCompilationParams();
               self.applyPluginsAsync("before-compile", params, function(err) {
                   if(err) return callback(err);
                   self.applyPlugins("compile", params);
                                                                                      compiler event
var compilation = self.newCompilation(params);
                   self.applyPluginsParallel("make", compilation, function(err) {
                      if(err) return callback(err);
                      compilation.finish();
                      compilation.seal(function(err) {
                          if(err) return callback(err);
                          self.applyPluginsAsync("after-compile", compilation, function(err) {
                             if(err) return callback(err);
                             return callback(null, compilation);
                         3);
                      3);
                  3);
               3);
           };
```

```
class BasicPlugin {
    constructor() {}
    apply(compiler) {
        compiler.plugin("make", (compilation) => {
            console.log("I now have access to the compilation!!!!!");
        });
```

module.exports = BasicPlugin;

What is Tapable?

```
class Some Plugin {
apply (compiler) {
    compiler. plugin("run", (c, cb) => {
        compiler. plugin("run", (c, cb) => {
        }
    }
}
```

```
class Compiler extends Tapable {
    somefunct() {
        this apply Plugins Async ("run", this , ()->
        }
        );
```

O Plugin is registered via compilers inherited apply fn. (from Tapable)

class Some Plugin { Class Some Plugin { Class Compiler extends Tapable { Some funct() {

```
apply (compiler) {

compiler. plugin("run", (c, cb)=> {

});
```

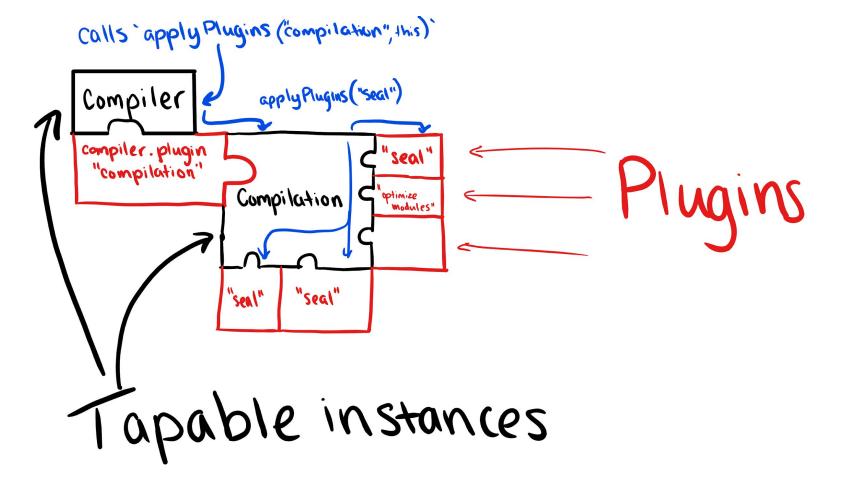
```
2 this apply Plugins Async ("run", this , ()->
(1) Plugin is registered via
 compilers inherited apply
 In. (from Tapable)
@ Tapable instances call
"apply Plugins ()" and pass the event and state through to plugin.
```

What is Tapable? Tapable instance

What is Tapable?

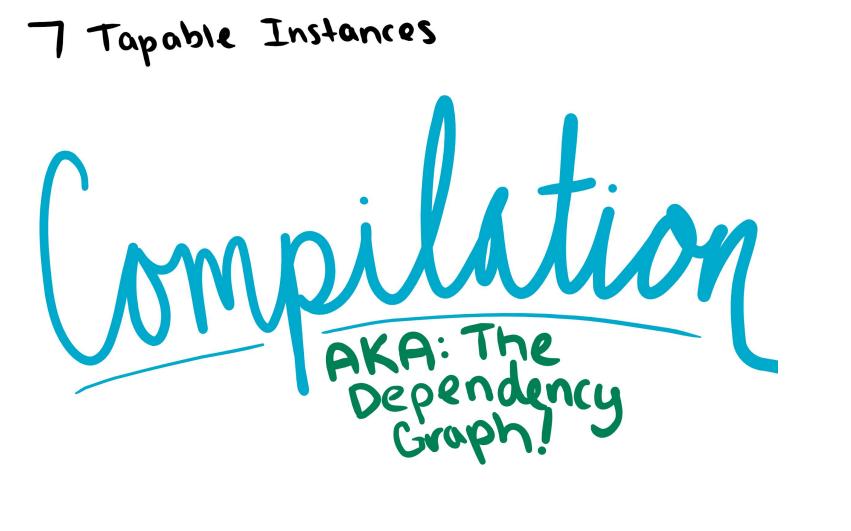
· Tapable instance A class/object that extends Tapable

(aka you can plug)
into!!



7" Tapable Instances (aka Masses) 编译器 7" Tapable Instances (aka Masses) Moles · Central Dispotch ·Exosed via · Start / Stop Node API

VES! that is the compiler instance! 7 Tapable Instances



7 Tapable Instances

7 Tapable Instances

Compilation

- · Created by the Compiler.
- . Contains dep graph traversal algo.

Tapable instance he Bloodhound

ish Tapable Instances "./foo.js

file.)s

path:

context:

request:

results:

解析者

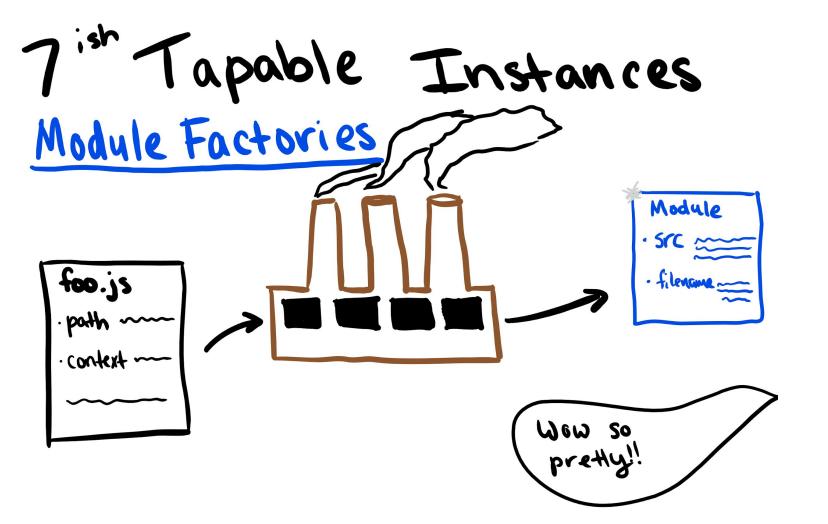
```
ResolverFactory.js ×
               var Resolver = require("./Resolver");
               var SyncAsyncFileSystemDecorator = require("./SyncAsyncFileSystemDecorator");
               var ParsePlugin = require("./ParsePlugin");
               var DescriptionFilePlugin = require("./DescriptionFilePlugin");
               var NextPlugin = require("./NextPlugin");
(3)
               var TryNextPlugin = require("./TryNextPlugin");
               var ModuleKindPlugin = require("./ModuleKindPlugin");
               var FileKindPlugin = require("./FileKindPlugin");
               var JoinRequestPlugin = require("./JoinRequestPlugin");
               var ModulesInHierachicDirectoriesPlugin = require("./ModulesInHierachicDirectoriesPlugin");
               var ModulesInRootPlugin = require("./ModulesInRootPlugin");
               var AliasPlugin = require("./AliasPlugin");
               var AliasFieldPlugin = require("./AliasFieldPlugin");
               var ConcordExtensionsPlugin = require("./ConcordExtensionsPlugin");
               var ConcordMainPlugin = require("./ConcordMainPlugin");
               var ConcordModulesPlugin = require("./ConcordModulesPlugin");
               var DirectoryExistsPlugin = require("./DirectoryExistsPlugin");
               var FileExistsPlugin = require("./FileExistsPlugin");
               var SymlinkPlugin = require("./SymlinkPlugin");
               var MainFieldPlugin = require("./MainFieldPlugin");
               var UseFilePlugin = require("./UseFilePlugin");
               var AppendPlugin = require("./AppendPlugin");
               var ResultPlugin = require("./ResultPlugin");
               var ModuleAppendPlugin = require("./ModuleAppendPlugin");
               var UnsafeCachePlugin = require("./UnsafeCachePlugin");
               exports.createResolver = function(options) {
```

7 sh Tapable Instances AML た。 横快T 7 sh Tapable Instances Module Factories

· Takes Succesfully Resolved Requests.

7 ish Tapable Instances Module Factories

- · Takes Sucresfully Resolved Requests.
- · Collects source for that file. Creates a Module obj.



7 sn Tapable Instances

语法分析器

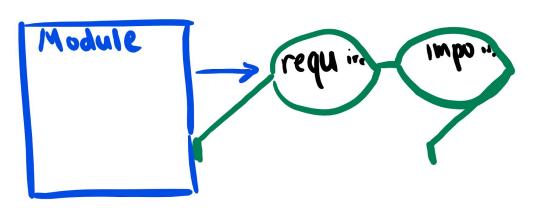
7 ish Tapable Instances Parser

- · Parses!!!!
- · Takes a Module Object, Eurns into AST to parse

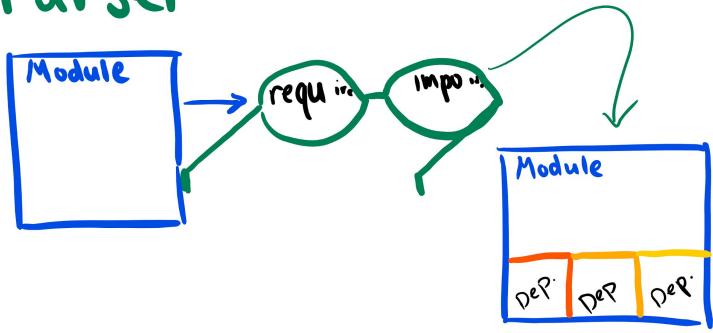
7 ish Tapable Instances Parser

- · Parses!!!!
- · Takes a Module Object, Eurns into AST to parse
 - · Find all require imports, create Dependancy's

7 ish Tapable Instances Parser



7" Tapable Instances Parser



7" Tapable Instances TEMPLATE 模板

7 Tapable Instances Template

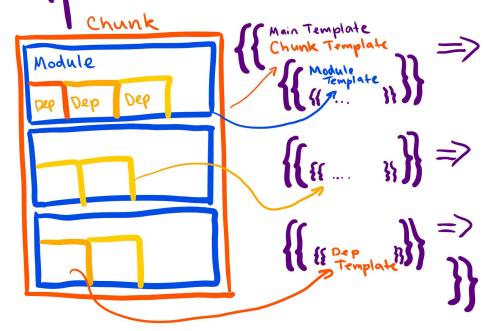
. Data binding for your modules

7 Tapable Instances Template

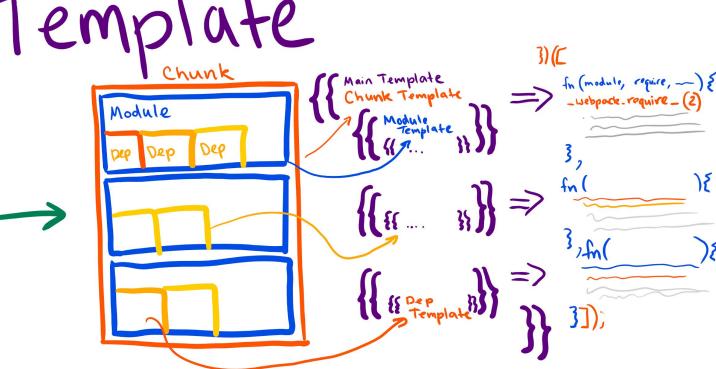
- . Data binding for your modules
- . Creates the code you see in your bundles.

7 Tapable Instances Template "render"

7" Tapable Instances Template



7 Tapable Instances Template



before-resulve Read options, create compilation Compiler Read entry Comp Trepeat process for each loader

How a Module gets to the BROWSER with webpack?

| DITOWSCIT WITH WESPERIE | |
|---|-----------------|
| Module Trans [con't wait to] [completion First, aco jump Chunk | |
| arp dep dep asynch the BROWSER' | 7 |
| Social Type been to get you into shape (a lot up and the shape) Chunk |] |
| we share yet. Almost there, Compilation I'm | |
| Those require those require and inject statement have to go!! rendered!!! Those require and inject statement have to go!! Those require and inject statement have to go!! Those require and inject statement have to go!! The second inject | ock. require) { |
| for "rendering" those dependencies you so had be for "rendering Dependency Templates Saye to have there!!! Dependency Templates Saye to how how Export spection | Tool S |
| Chunk template module template module template Mep remplate Dep. Factory Dep. TemplatoM | |

Module

rep dep dep depblate

Hil Im a module! I can't

dule!! BROWSER

whoa there!

Cool your jets. We need

before you are ready for the Big Stage!

YOU TO JUMP in This container a chunk. I'll be Ehrowing of and Tose brack of

Compilation (I'm Almost there, but we nave a broplew; and import statement have to go!!
The Parser gave me special instructions for "rendering" those dependencies you have there !!! Dependency Temptates Dependency Factory.

rendered Sunction (require, module, webpock. ependencies you Braver Land VAY WEBPACK_Harmonub : + and be ncy Temptates Dep. Templates Mn

YOU JUST LEARNED HOW WEBPACK WORKS ENTIRELY UNDER THE HOOD.

WHY SHOULD I CARE?

```
var OptionsApply = require("./OptionsApply");
    SourceMapDevToolMod...
    SourceMapDevToolPlugi...
                                  var LoaderTargetPlugin = require("./LoaderTargetPlugin");
    Stats.js
                                  var FunctionModulePlugin = require("./FunctionModulePlugin");
    Template.js
                                  var EvalDevToolModulePlugin = require("./EvalDevToolModulePlugin");
                                  var SourceMapDevToolPlugin = require("./SourceMapDevToolPlugin");
    TemplatedPathPlugin.js
                                  var EvalSourceMapDevToolPlugin = require("./EvalSourceMapDevToolPlugin");
    UmdMainTemplatePlugi...
    UnsupportedFeatureWa...
                                  var EntryOptionPlugin = require("./EntryOptionPlugin");
    UseStrictPlugin.js
                                  var RecordIdsPlugin = require("./RecordIdsPlugin");
    validateSchema.is
    WarnCaseSensitiveMod...
                                  var APIPlugin = require("./APIPlugin");
                                  var ConstPlugin = require("./ConstPlugin");
    WatchIgnorePlugin.js
                                  var RequireJsStuffPlugin = require("./RequireJsStuffPlugin");
    webpack.js
                                  var NodeStuffPlugin = require("./NodeStuffPlugin");
    webpack.web.js
                                  var CompatibilityPlugin = require("./CompatibilityPlugin");
    WebpackOptionsApply.js
    WebpackOptionsDefault...
                                  var TemplatedPathPlugin = require("./TemplatedPathPlugin");
    WebpackOptionsValidat...
                                  var WarnCaseSensitiveModulesPlugin = require("./WarnCaseSensitiveModulesPlugin");
 ▶ schemas
                                  var UseStrictPlugin = require("./UseStrictPlugin");
 ▶ test
                                  var LoaderPlugin = require("./dependencies/LoaderPlugin");
 ▶ web modules
                                  var CommonJsPlugin = require("./dependencies/CommonJsPlugin");
   .editorconfig
                                  var HarmonyModulesPlugin = require("./dependencies/HarmonyModulesPlugin");
   .eslintrc
                                  var SystemPlugin = require("./dependencies/SystemPlugin");
   .gitattributes
                                  var ImportPlugin = require("./dependencies/ImportPlugin");
   .gitignore
   .jsbeautifyrc
   .travis.yml
                                  var RequireIncludePlugin = require("./dependencies/RequireIncludePlugin");
  appveyor.yml
  circle.yml
                                  var EnsureChunkConditionsPlugin = require("./optimize/EnsureChunkConditionsPlugin");
   codecov.yml
                                  var RemoveParentModulesPlugin = require("./optimize/RemoveParentModulesPlugin");
   CONTRIBUTING.md
                                  var RemoveEmptyChunksPlugin = require("./optimize/RemoveEmptyChunksPlugin");
   LICENSE
                                  var MergeDuplicateChunksPlugin = require("./optimize/MergeDuplicateChunksPlugin");
                                  var FlagIncludedChunksPlugin = require("./optimize/FlagIncludedChunksPlugin");
  package.json
                                  var OccurrenceOrderPlugin = require("./optimize/OccurrenceOrderPlugin");
   README.md
                                  var FlagDependencyUsagePlugin = require("./FlagDependencyUsagePlugin");
  yarn.lock
                                  var FlagDependencyExportsPlugin = require("./FlagDependencyExportsPlugin");
webpack-sources
                                  van SizolimitaDlugin - roquino(" /norformanco/SizolimitaDlugin"):
```

these handle Sarmat

ACK-TOUR

EVERY INSTANCE CAN BE PLUGGED INTO!!!

TIME FOR AUESTIONS!

PS: THERE ARE NO WRONG QUESTIONS.

LET'S MAKE PLUGINS!!!

thelarkinn/everything-is-a-plugin

```
$ git clone https://github.com/thelarkinn/everything-is-a-plugin
```

- \$ yarn/npm install
- \$ git checkout 1.0 ←GIT TAG BASED "LESSONS"

THREE COMMANDS

\$ npm run build

\$ npm run dev (watch mode with webpack-dev-server)

\$ npm run debug

WHERE CAN I START?







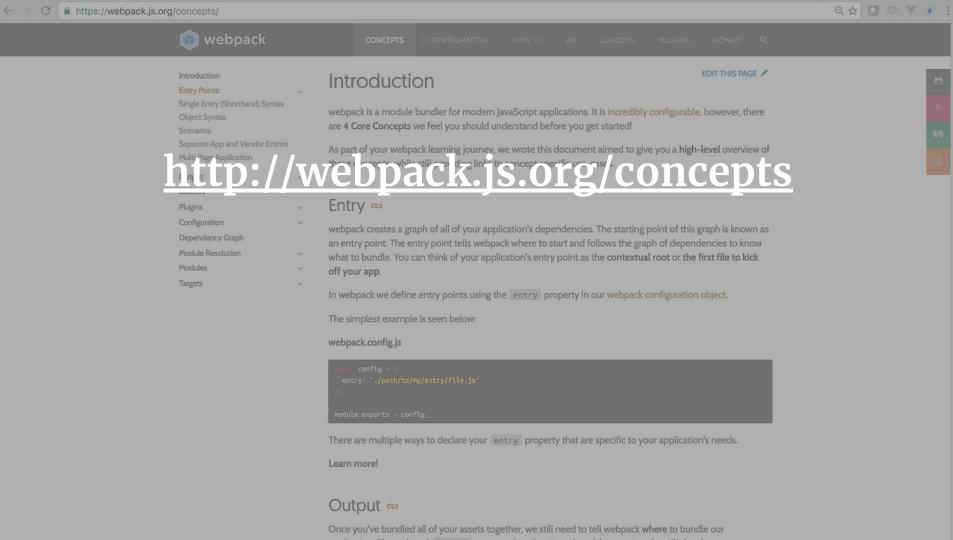
EPISODE 1 - 22ND AUGUST 2016

Webpack From First Principles



Webpack often gets a bad rap in the front end community - plenty of digital ink has been spilled over whether web development is "too complicated", with Webpack taking center stage. But in reality, it's no more complex than the sites we're building with it, and conceptually its role is quite clear.

Let's demystify the tool by stripping it back to what it truly is -an ahead-of-time compiler for the browser.

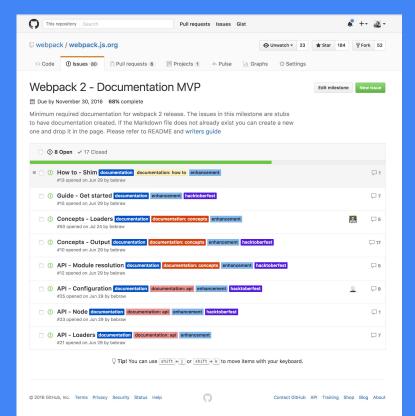


HOW CAN I HELP?

TRIAGE

CORE LOADERS / PLUGINS

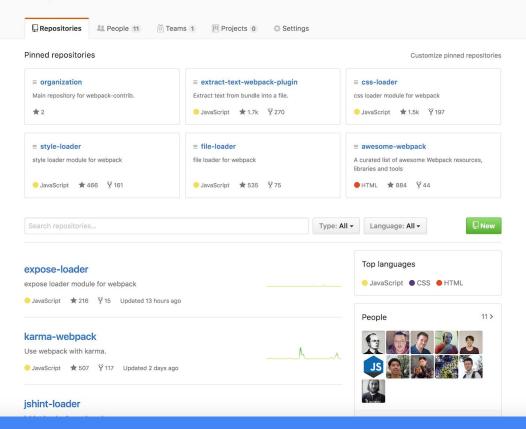
CONTRIBUTE TO NEW DOCS





Community supported 3rd party packages for webpack

https://webpack.js.org/



USE WEBPACK Z

npm install webpack

https://webpack.threadless.com



Help support webpack!

By your contributions, donations, and sponsorship, you allow webpack to thrive.

Your donations go directly towards supporting office hours, continued enhancements, and most importantly, great documenation and learning material!





Become a Backer

OPENCOLLECTIVE.COM/WEBPACK







Help shape the future of webpack by backing and sponsorship

We are on a mission to raise the bar for web performance and developer experience. With one tool.

@THELARKINN

#WEBPACK

Tweet Questions, Gripes, Concerns, Frustrations

WEBPACK IS BUILT BY YOU...

AND WE GIVE A CRAP ...