



ANGULAR



ANGULAR

—— 挣脱舒适区的枷锁

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职位：PPT动画工程师 😊



写在前面

名称： AngularJS Angular

版本： 1.0~1.6 2.0~5.1

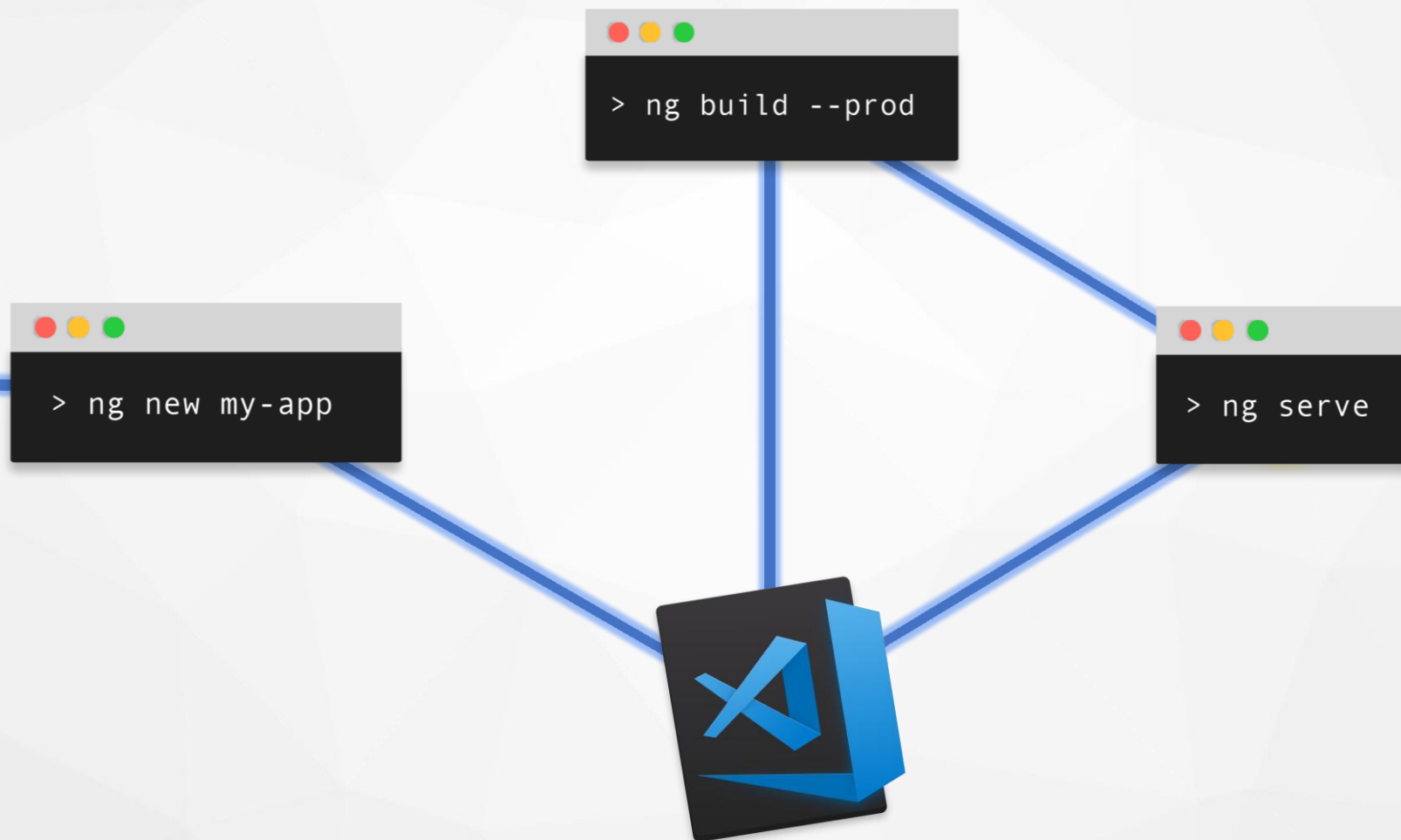
发布时间： 2009 2016

LOGO:





所谓的 Angular 开发流程



案例分析

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最小应用

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独立构建

3



动态视图

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最小应用

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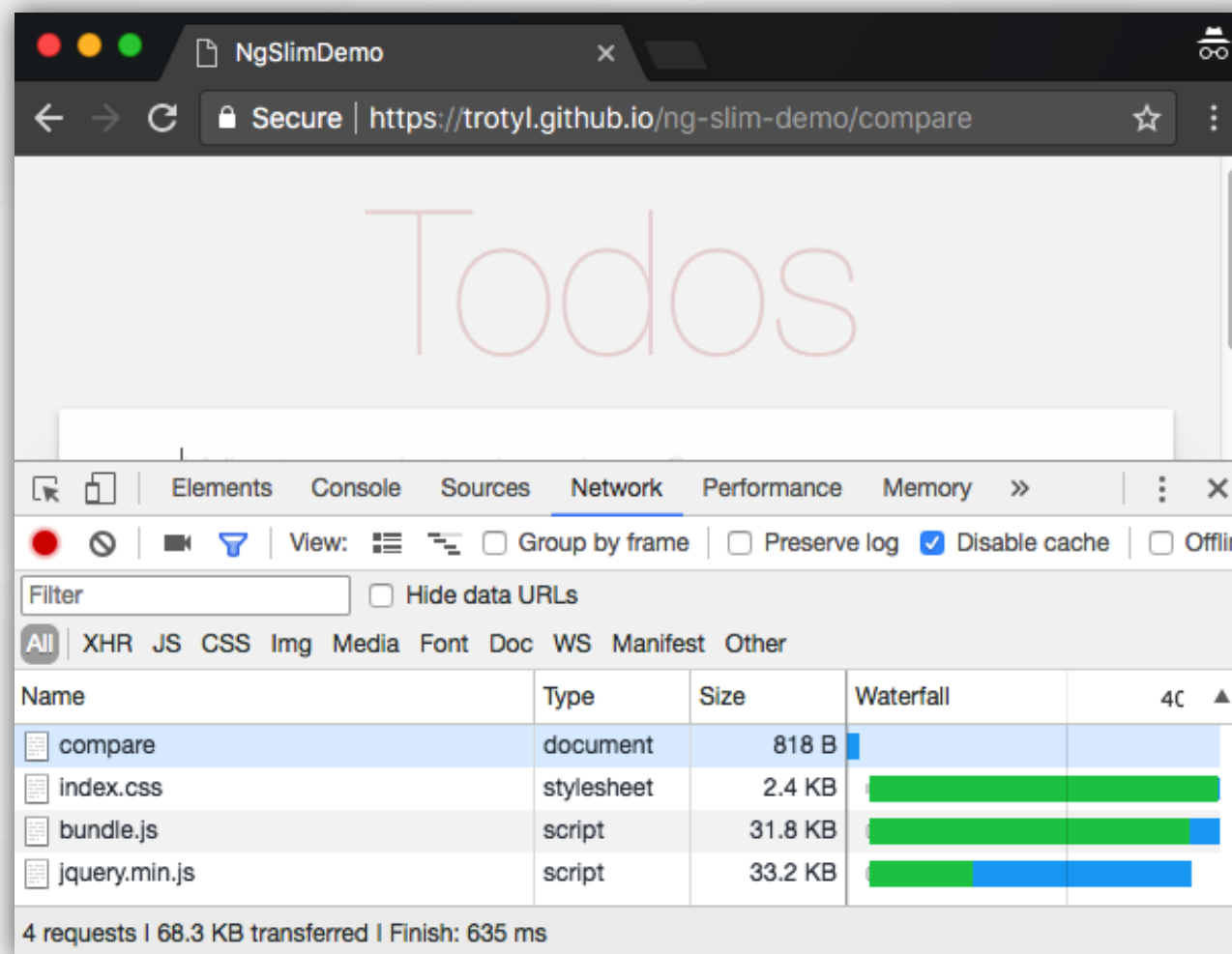
最小应用

在线示例

1



最小应用



比 jQuery 要小 1.4KB

2

3

1



最小应用

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AOT 编译

JS app.component.ngfactory.js x

```
1 export function View_AppComponent() {
2   return viewDef([
```

<> app.component.html x

```
1 <input class="toggle" type="checkbox" (click)="toggle(todo)" [checked]="todo.completed">
```

```
6   [[BindingFlags.TypeProperty, 'checked']],
7   [[null, 'click']],
8   function (component, eventName, $event) {
9     if (eventName === 'click') {
10      component.toggle(component.todo)
11    }
12  }
13 )
14 ])
15 }
```

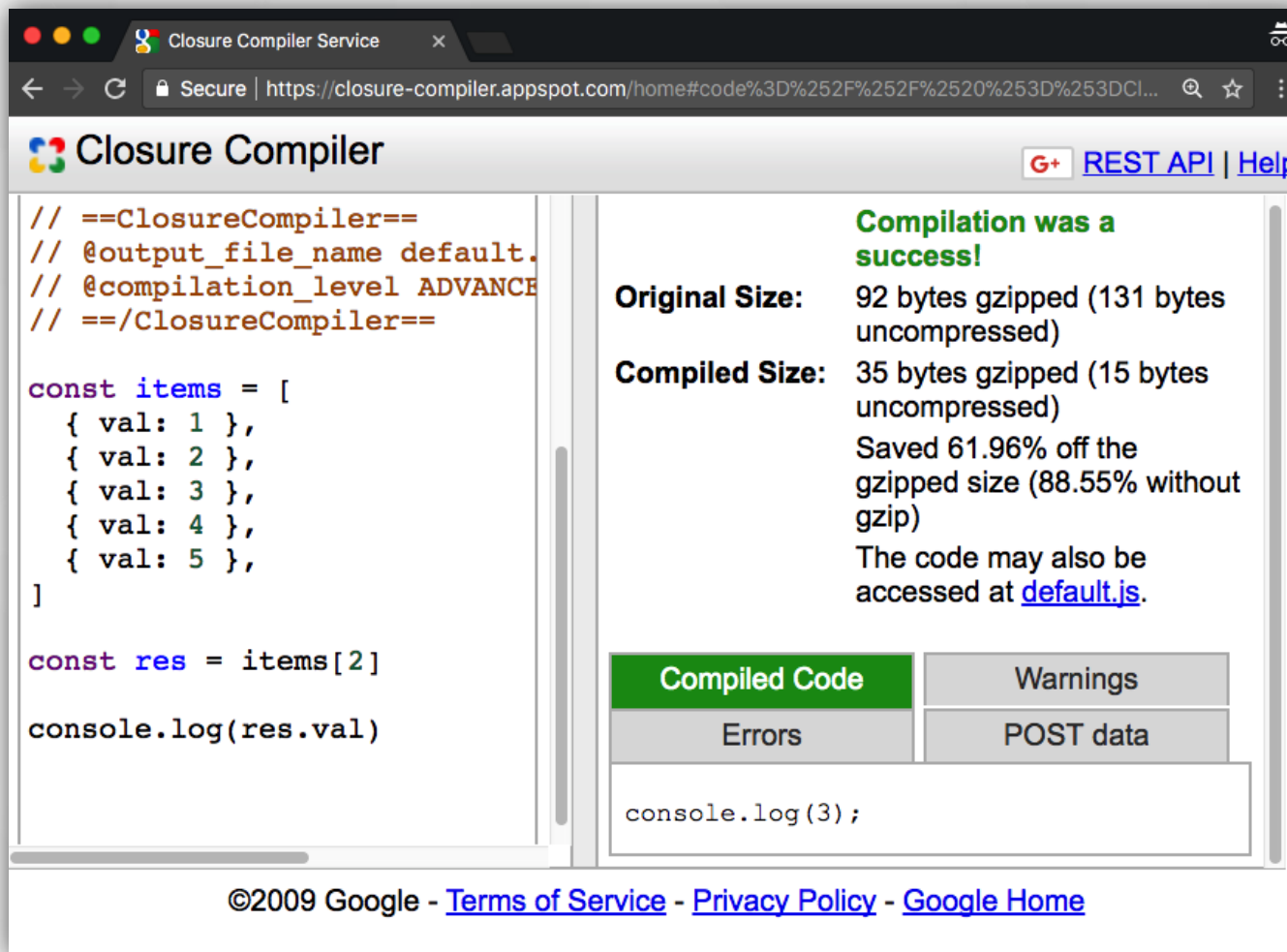
模版与编译结果对比

Closure Compiler

1



最小应用



The screenshot shows the Closure Compiler web interface. The left pane contains the source code:

```
// ==ClosureCompiler==
// @output_file_name default.
// @compilation_level ADVANCED_OPTIMIZATIONS
// ==/ClosureCompiler==

const items = [
  { val: 1 },
  { val: 2 },
  { val: 3 },
  { val: 4 },
  { val: 5 },
]

const res = items[2]
console.log(res.val)
```

The right pane shows the compilation results:

Compilation was a success!

Original Size: 92 bytes gzipped (131 bytes uncompressed)

Compiled Size: 35 bytes gzipped (15 bytes uncompressed)

Saved 61.96% off the gzipped size (88.55% without gzip)

The code may also be accessed at [default.js](#).

Below the results are four tabs: **Compiled Code** (selected), Warnings, Errors, and POST data. The **Compiled Code** tab shows the output:

```
console.log(3);
```

At the bottom of the interface, there is a footer: ©2009 Google - [Terms of Service](#) - [Privacy Policy](#) - [Google Home](#)

2

3

Advanced 模式编译结果示例

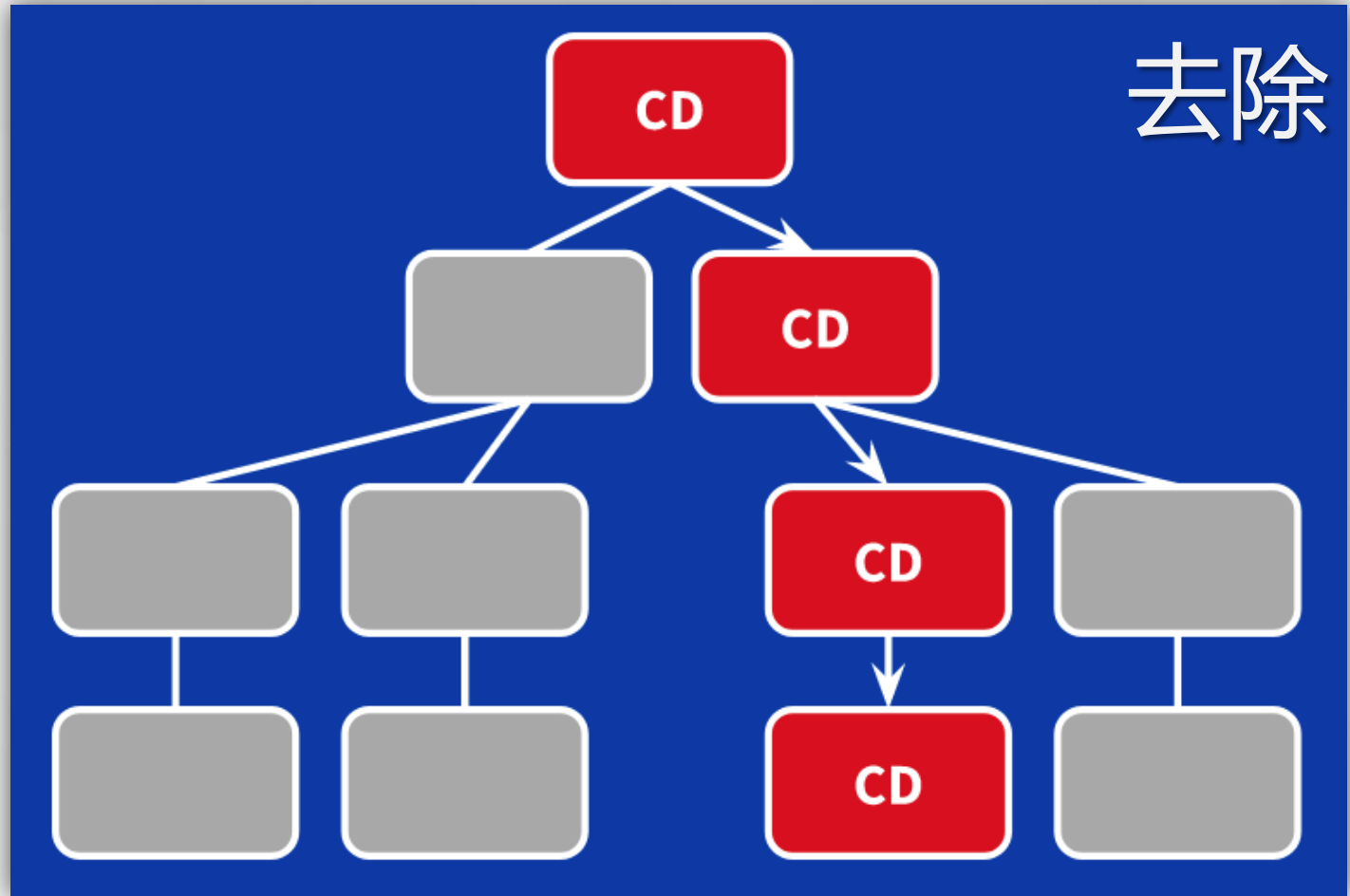
1



最小应用

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去除 Zone.js

Angular 中的变化检测流

1



最小应用

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```
/app/hello.component.ts
1 import { Component, Input } from '@angular/core'
2 import { StateManager } from './state-manager'
3
4 interface HelloComponentState {
5   name: string
6 }
7
8 @Component({
9   selector: 'hello',
10  template: `<h1>Hello {{ state.name }}!</h1>`,
11  styles: [`h1 { font-family: Lato; }`],
12  providers: [StateManager]
13 })
14 export class HelloComponent {
15   state: HelloComponentState
16
17   constructor(private stateManager: StateManager<HelloComponentState>) {
18     this.state = stateManager.init({ name: 'World' })
19   }
20
21   @Input()
22   set name(value: string) {
23     this.stateManager.update({ name: value })
24   }
25 }
```

去除 Zone.js

简单的响应式状态

1



最小应用

2

3

```
import { Store } from '@ngrx/store'
import { INCREMENT, DECREMENT, RESET } from './counter'

interface AppState {
  counter: number
}

@Component({
  selector: 'my-app',
  template: `
    <button (click)="increment()">Increment</button>
    <div>Current Count: {{ counter | async }}</div>
    <button (click)="decrement()">Decrement</button>
    <button (click)="reset()">Reset Counter</button>
  `
})
class MyAppComponent {
  counter: Observable<number>;
  constructor(private store: Store<AppState>){ this.counter = store.select('counter'); }
  increment(){ this.store.dispatch({ type: INCREMENT }) }
  decrement(){ this.store.dispatch({ type: DECREMENT }) }
  reset(){ this.store.dispatch({ type: RESET }) }
}
```

去除 Zone.js

ngrx 的状态管理

1



最小应用

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Branch: master angular / packages /

Create new file Upload files Find file History

chuckjaz committed with jasonaden fix(core): ensure init lifecycle events are called (#20258) Latest commit 24cf8b3 4 days ago

..		
animations	refactor(animations): uses a loop instead Array.map() which creates a...	a day ago
bazel	fix(bazel): don't console.error from the compile helper (#19879)	19 days ago
benchpress	refactor: allow compilation with TypeScript 2.5 (#19966)	12 days ago
common	docs(common): update default display value for CurrencyPipe (#20246)	2 days ago
compiler-cli	fix(compiler): recognize @NgModule with a redundant @Injectable (#20320)	2 days ago
compiler	fix(compiler): recognize @NgModule with a redundant @Injectable (#20320)	2 days ago
core	fix(core): ensure init lifecycle events are called (#20258)	a day ago
docs	refactor: move angular source to /packages rather than modules/@angular	8 months ago
examples	docs(aio): fix -mm- to -MM- for month in DatePipe (#20315)	2 days ago
forms	docs: fix link texts	11 days ago
http	fix: add missing globals from each rollup configuration (#20028)	12 days ago
language-service	fix(language-service): pass compilerOptions.paths to ReflectorHost (#...	2 days ago
platform-browser-dynamic	refactor: make all rollup config ES5 compatible (#20028)	12 days ago
platform-browser	refactor(core): misc changes and integrate review feedback on #19996	5 days ago
platform-server	fix: add missing globals from each rollup configuration (#20028)	12 days ago
platform-webworker-dynamic	refactor: make all rollup config ES5 compatible (#20028)	12 days ago
platform-webworker	refactor: make all rollup config ES5 compatible (#20028)	12 days ago
router	docs: fix link texts	11 days ago
service-worker	refactor: make all rollup config ES5 compatible (#20028)	12 days ago
upgrade	revert: feat(core): add source to `StaticInjectorError` message (#19482...	8 days ago

自定义平台

Angular 自带的平台支持

自定义平台

1



最小应用

```
28
29 export const INTERNAL_BROWSER_PLATFORM_PROVIDERS: StaticProvider[] = [
30   {provide: PLATFORM_ID, useValue: PLATFORM_BROWSER_ID},
31   {provide: PLATFORM_INITIALIZER, useValue: initDomAdapter, multi: true},
32   {provide: PlatformLocation, useClass: BrowserPlatformLocation, deps: [DOCUMENT]},
33   {provide: DOCUMENT, useFactory: _document, deps: []},
34 ];
35
47 /**
48  * @stable
49  */
50 export const platformBrowser: (extraProviders?: StaticProvider[]) => PlatformRef =
51   createPlatformFactory(platformCore, 'browser', INTERNAL_BROWSER_PLATFORM_PROVIDERS);
52
```

PlatformFactory 的建立过程

2

3

1



最小应用

2

3

```
137 @NgModule({
138   declarations: [
139     AppComponent,
140   ],
141   imports: [
142     ApplicationModule,
143     CommonModule,
144   ],
145   providers: [
146     { provide: ErrorHandler, useClass: ErrorHandler, deps: [] },
147     { provide: RendererFactory2, useClass: DomPluginRendererFactory },
148     { provide: Sanitizer, useClass: NoopSanitizer },
149   ],
150   bootstrap: [AppComponent]
151 })
152 export class AppModule { }
```

自定义平台

不使用 BrowserModule 的根模块

1



最小应用

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独立构建

在线示例

2



独立构建

<https://trotyl.github.io/ng-component-loader-demo/>

<https://trotyl.github.io/ng-standalone-components-demo/>

3

2



独立构建

3

基本原理

```

7  const globals = {
8      '@angular/animations': 'ng.animations',
9      '@angular/core': 'ng.core',
10     '@angular/common': 'ng.common',
11     '@angular/compiler': 'ng.compiler',
12     '@angular/forms': 'ng.forms',
13     '@angular/platform-browser': 'ng.platformBrowser',
14     '@angular/platform-browser/animations': 'ng.platformBrowser.animations',
15     'rxjs/Observable': 'Rx',
16     'rxjs/Subject': 'Rx',
17     'rxjs/observable/fromPromise': 'Rx.Observable',
18     'rxjs/observable/forkJoin': 'Rx.Observable',
19     'rxjs/operator/map': 'Rx.Observable.prototype'
20 }
21
22 module.exports = {
23     entry: 'out-tsc/src/main.js',
24     dest: 'dist/bundle.js',
25     format: 'umd',
26     exports: 'named',
27     amd: {id: 'ngDemos.platform'},
28     moduleName: 'ngDemos.platform',
29     plugins: [resolve(), commonjs(), sourcemaps(), buildOptimizer(), uglify()],
30     external: Object.keys(globals),
31     globals: globals
32 }

```

rollup.config.js 配置内容

2



独立构建

3

```
11 load(url: string): void {
12   const segments = url.split('/')
13   const name = segments[segments.length - 1].replace('.js', '')
14
15   while (this.scriptHost.firstChild) {
16     this.scriptHost.removeChild(this.scriptHost.firstChild)
17   }
18   const script = document.createElement('script')
19   script.src = url
20   script.type = 'text/javascript'
21   script.defer = true
22   script.onload = () => {
23     const cmpFactory = window.ngDemos[name]
24     this.container.createComponent(cmpFactory)
25   }
26   this.scriptHost.appendChild(script)
27 }
```

API 调用

基于 <script> tag 的代码加载器

2



独立构建

3

动态视图

Web Components

3



动态视图

Custom Elements

Shadow DOM

TemplateTag

HTML Import

3

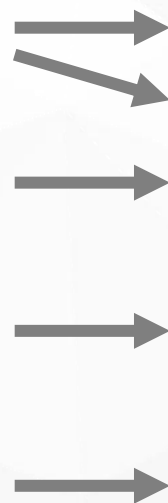


动态视图

@angular/elements

Angular Component

- Input Property
- Output Property
- View
- Content Projection



Web Component

- Observed Attribute
- Accessor Property
- Custom Event
- Shadow DOM
- Slot



@angular/elements

```
1 import { platformBrowserDynamic } from '@angular/platform-browser-dynamic'
2 import { registerAsCustomElements } from '@angular/elements'
3 import { SeparatorComponent } from './app/separator/separator.component'
4
5 import { AppModule } from './app/app.module'
6
7 const bootstrapFn = () => platformBrowserDynamic().bootstrapModule(AppModule)
8
9 registerAsCustomElements([SeparatorComponent], bootstrapFn)
10
```

Custom Element 注册过程

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动态视图



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THANK YOU

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