

1. Karma Basic

Karma的配置集中在karma.config.js

Default Karma config for open browser:

```
plugins: [
  require('karma-jasmine'),
  require('karma-chrome-launcher'),
  require('karma-jasmine-html-reporter'),
  require('karma-coverage-istanbul-reporter'),
  require('@angular-devkit/build-angular/plugins/karma')
],
```

Config with headless browser

If you think its too slow to open browser every time, its also support to run test with headless browser which would be bit quicker.

有两种配置方式：

使用ChromeHeadless (最简单)

Karma.conf.js

```
//browsers: ['Chrome'],
autoWatch: false,
browsers: ['ChromeHeadless'],
customLaunchers: {
  ChromeHeadless: {
    base: 'Chrome',
    flags: [
      '--headless',
      '--disable-gpu',
      '--no-sandbox',
      '--remote-debugging-port=9222',
    ]
  }
},
singleRun: true,
```

使用phantomjs

```
npm i --save-dev karma-phantomjs-launcher
```

Karma.conf.js

```
plugins: [
  require('karma-jasmine'),
  require('karma-phantomjs-launcher'),
  require('karma-jasmine-html-reporter'),
  require('karma-coverage-istanbul-reporter'),
  require('@angular/cli/plugins/karma')

//...other config
browsers: ['PhantomJS'],
```

If the project is using ES6, while Phantomjs only supporting ES5, so error may happen:

```
PhantomJS 2.1.1 (Mac OS X 0.0.0) ERROR
SyntaxError: Use of reserved word 'class'
at http://localhost:9877/_karma_webpack_/polyfills.js:3166:0

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SyntaxError: Use of reserved word 'class'
at http://localhost:9877/_karma_webpack_/polyfills.js:3166:0
```

To fix it, `refering post <https://stackoverflow.com/questions/29736114/how-to-use-es6-with-phantomjs>

Finally, another solution is to use Jest instead.

TestCoverage

- 生成测试覆盖率报告命令： "ng test --no-watch --code-coverage"
- 完成时，会在项目中创建一个新的 /coverage 目录。打开其 index.html 文件以查看代码覆盖率值的报告
- 如果希望每次都生成有两种方法：

- 方法一： 更新"Script" in package.json

```
"test": "ng test --no-watch --code-coverage"*
```

- 方法二： 配置angular.json

```
"test": {
  "options": {
    "codeCoverage": true,
    "codeCoverageExclude": [
      "src/app/models/**/*"
    ]
  }
}
```

- To setup threshold for test coverage:

```
coverageIstanbulReporter: {
  reports: [ 'html', 'lcovonly' ],
  fixWebpackSourcePaths: true,
  thresholds: {
    statements: 80,
    lines: 80,
    branches: 80,
    functions: 80
  }
}
```

Reference

- <https://angular.cn/guide/testing#testing>