



Angular Advanced

01 - Introduction



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Peter Kassenaar

- Trainer, author, developer – sinds 1996
- Specialty: *"Everything JavaScript"*
- JavaScript, ES6, Angular, NodeJS, TypeScript, jQuery, PhoneGap, Ionic

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www.angulartraining.nl

github.com/PeterKassenaar/incentro

About you...



Knowledge of Angular, (mobile/web-) apps?

How long have you worked with Angular yet?

Tell us a little bit about your projects.

What are your expectations of this course?

Material

Software (Angular + libraries)

Handouts (PDF, Github)

Exercises (Github)

Websites (online)



angular.io/

Broadening?



or...

deepening?



Agenda - 3 days

- Various
 - Angular CLI tips & tricks
 - Content projection
- NG applications with multiple modules
 - Routing and Lazy loading modules
 - Loading strategies
- Pattern: Smart components/View components
- Managing state with @ngrx/store
- Angular and realtime databases/Firebase
- Angular Elements
- PWA's

Labs and example code

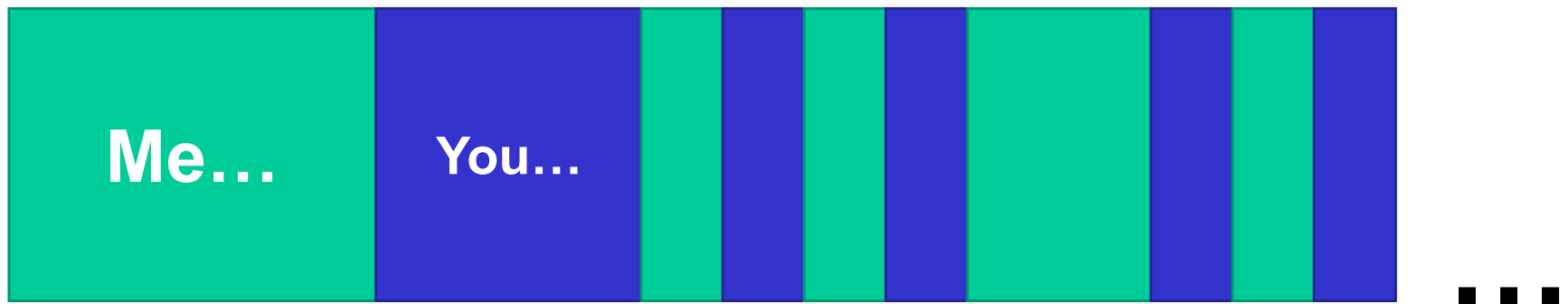
1. Labs/Exercises

- In the PDF's in the Github-repo. But: feel free to deviate. Adapt to suit your own needs! (hobby, work, current projects)

2. Example code

- Executions of the exercises, small projects (`npm install`, `npm start`)
- Work in progress – let me know of additions/errors!
- github.com/PeterKassenaar/AngularAdvanced

Overall process



Questions?



Angular CLI

Scaffold new projects, modules, components via command line...

```
> npm install -g @angular/cli
> ng new my-dream-app
> cd my-dream-app
> ng serve
```

Angular CLI

A command line interface for Angular

[GET STARTED](#)

ng new

The Angular CLI makes it easy to create an application that already works, right out of the box. It already follows our best practices!

ng generate


Generate components, routes, services and pipes with a simple command. The CLI will also create

simple test shells for all of these

We'll be using Angular-CLI this course

- It *is* possible to configure your Angular app by hand
- Using the CLI it's much simpler.
- CLI-options:
 - Scaffolding
 - Generating
 - Testing
 - Building
 - AOT-Compiling
 - ...

<https://cli.angular.io>



README.md

Angular CLI

chat

on gitter

build

passing

dependencies

up to date

devDependencies

up to date

npm

v1.2.0

CLI for Angular applications based on the [ember-cli](#) project.

Note

The CLI is now in 1.0. If you are updating from a beta or RC version, check out our [1.0 Update Guide](#).

If you wish to collaborate, check out [our issue list](#).

Before submitting new issues, have a look at [issues marked with the type: faq label](#).

Prerequisites

Both the CLI and generated project have dependencies that require Node 6.9.0 or higher, together with NPM 3 or higher.

Table of Contents

- [Installation](#)
- [Usage](#)
- [Generating a New Project](#)
- [Generating Components, Directives, Pipes and Services](#)
- [Updating Angular CLI](#)

```
npm install -g @angular/cli
```



CLI can...

```
> ng generate component my-comp
```

NG
CONF

4:50 / 23:39

Learn Clingon - Mike Brocchi

The image shows a YouTube video player interface. The main content area displays a terminal window with the text 'CLI can...' and a command prompt showing the command '> ng generate component my-comp'. To the right of the terminal, there is a small inset video of a man in a green shirt standing on a stage with a circuit board background. Below the terminal, there is a large 'NG CONF' logo. At the bottom of the video player, there is a progress bar showing '4:50 / 23:39' and standard video controls. Below the video player, the video title 'Learn Clingon - Mike Brocchi' is displayed.

<https://www.youtube.com/watch?v=wHZe6gGI5RY>

Main commands

ng new – create basic app

```
ng new PROJECT_NAME  
cd PROJECT_NAME  
ng serve
```

Project is served on `http://localhost:4200`

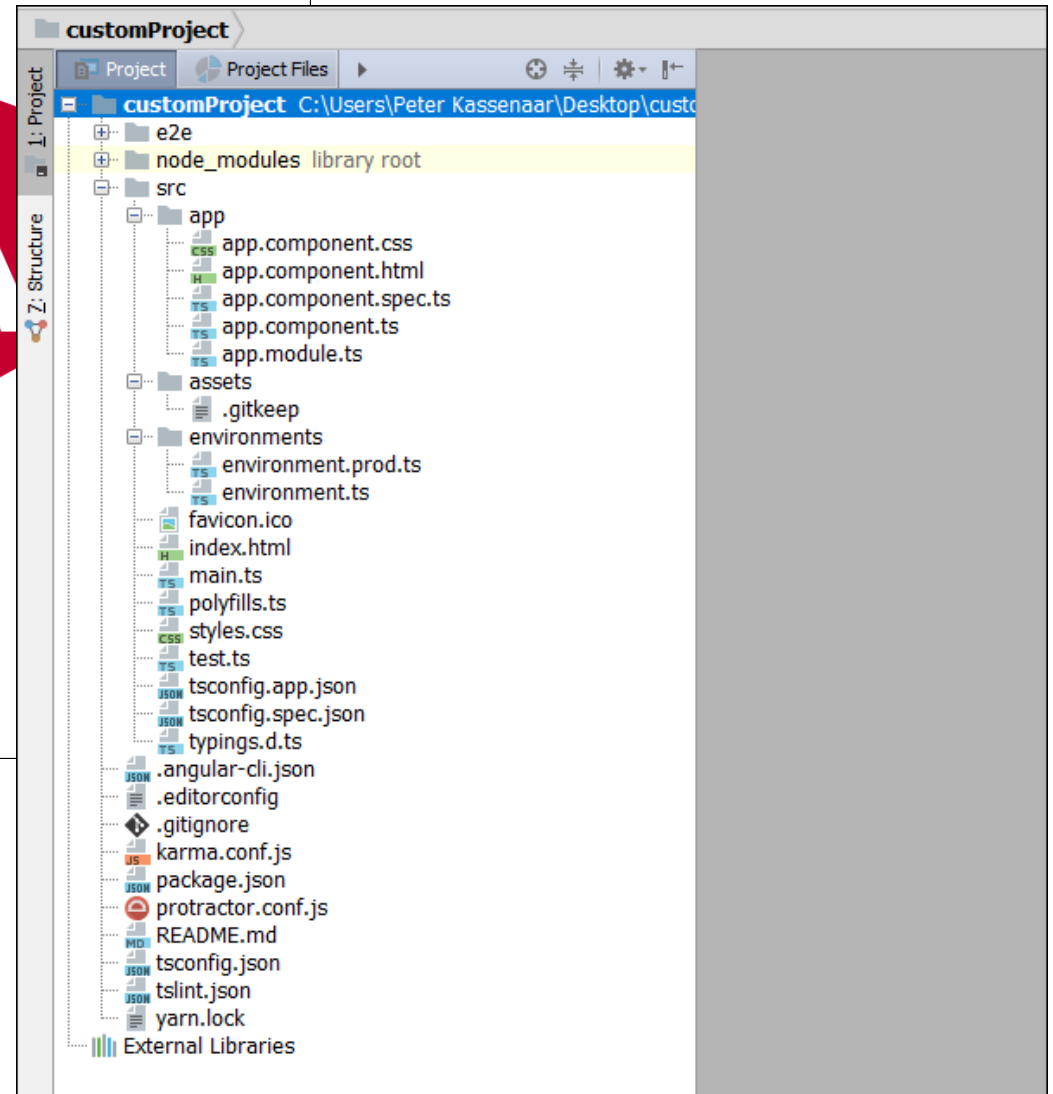
Default application



Here are some links to help you start:

- [Tour of Heroes](#)
- [CLI Documentation](#)
- [Angular blog](#)

(228 MB)



Some CLI tips & tricks

- `ng serve --open` Directly open the compiled project in the browser
- `ng serve --port 4300` Serve project on different port
- `ng serve --ssl` Serve using `https://`
- `ng serve --live-reload false` Do not use live reload
- `ng serve --help` Overview of all other options

More ng tooling

- `ng generate <blueprint> --dry-run` Do not write output files
- `ng generate <blueprint> --spec false` Do not write spec file
- `ng generate module <name> --routing` add routing to new module

Lots (!) of options

Adding Features to Your Angular Application

You can use the `ng generate` command to add features to your existing application:

- `ng generate class my-new-class`: add a class to your application
- `ng generate component my-new-component`: add a component to your application
- `ng generate directive my-new-directive`: add a directive to your application
- `ng generate enum my-new-enum`: add an enum to your application
- `ng generate module my-new-module`: add a module to your application
- `ng generate pipe my-new-pipe`: add a pipe to your application
- `ng generate service my-new-service`: add a service to your application

The `generate` command and the different sub-commands also have shortcut notations, so the following commands are similar:

- `ng g cl my-new-class`: add a class to your application
- `ng g c my-new-component`: add a component to your application
- `ng g d my-new-directive`: add a directive to your application
- `ng g e my-new-enum`: add an enum to your application
- `ng g m my-new-module`: add a module to your application
- `ng g p my-new-pipe`: add a pipe to your application
- `ng g s my-new-service`: add a service to your application

Each of the different sub-commands performs a different task and offers different options and parameters.

Let's have a look at each of them.

Adding a new class

NEW – As of May 2018

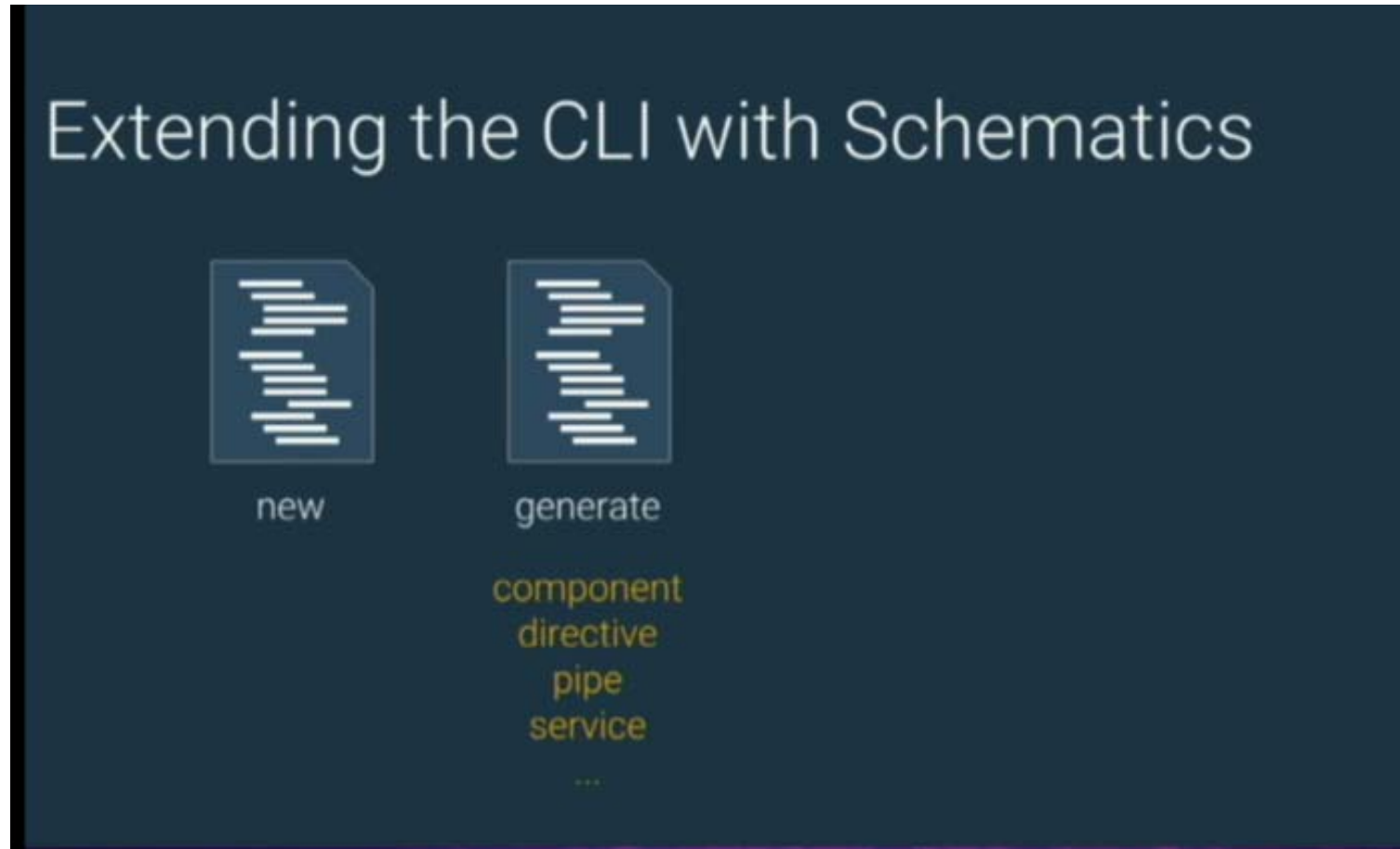


About version numbering

Aligning Library Releases

	Today	With v6
Angular	5.2.10	6.0
Material	5.2.4	6.0
CLI	1.7	6.0

New CLI Options



Extending the CLI with Schematics



new



generate



update



add

component
directive
pipe
service
...

Info on the Angular 6.x keynote



<https://www.youtube.com/watch?v=dIxknqPOWms>

NEW – As of August 2018

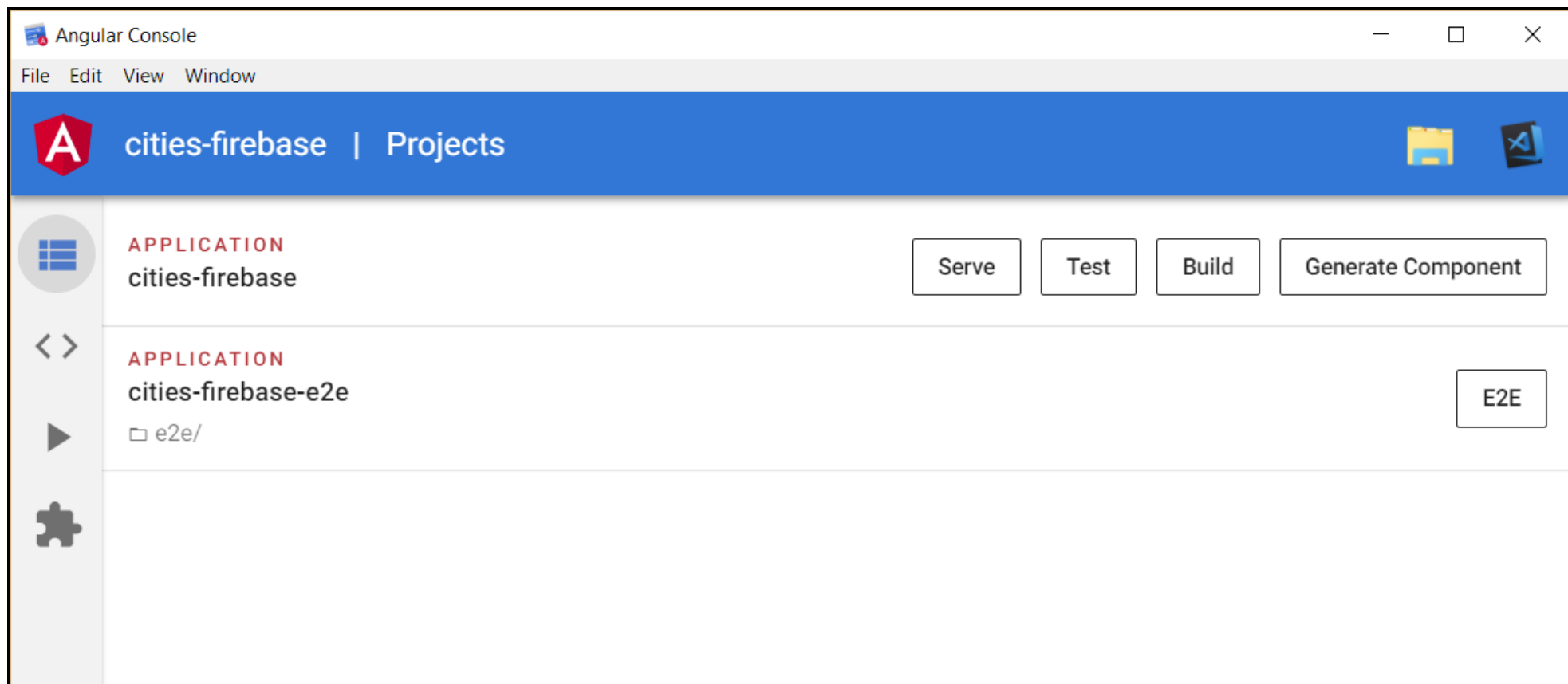


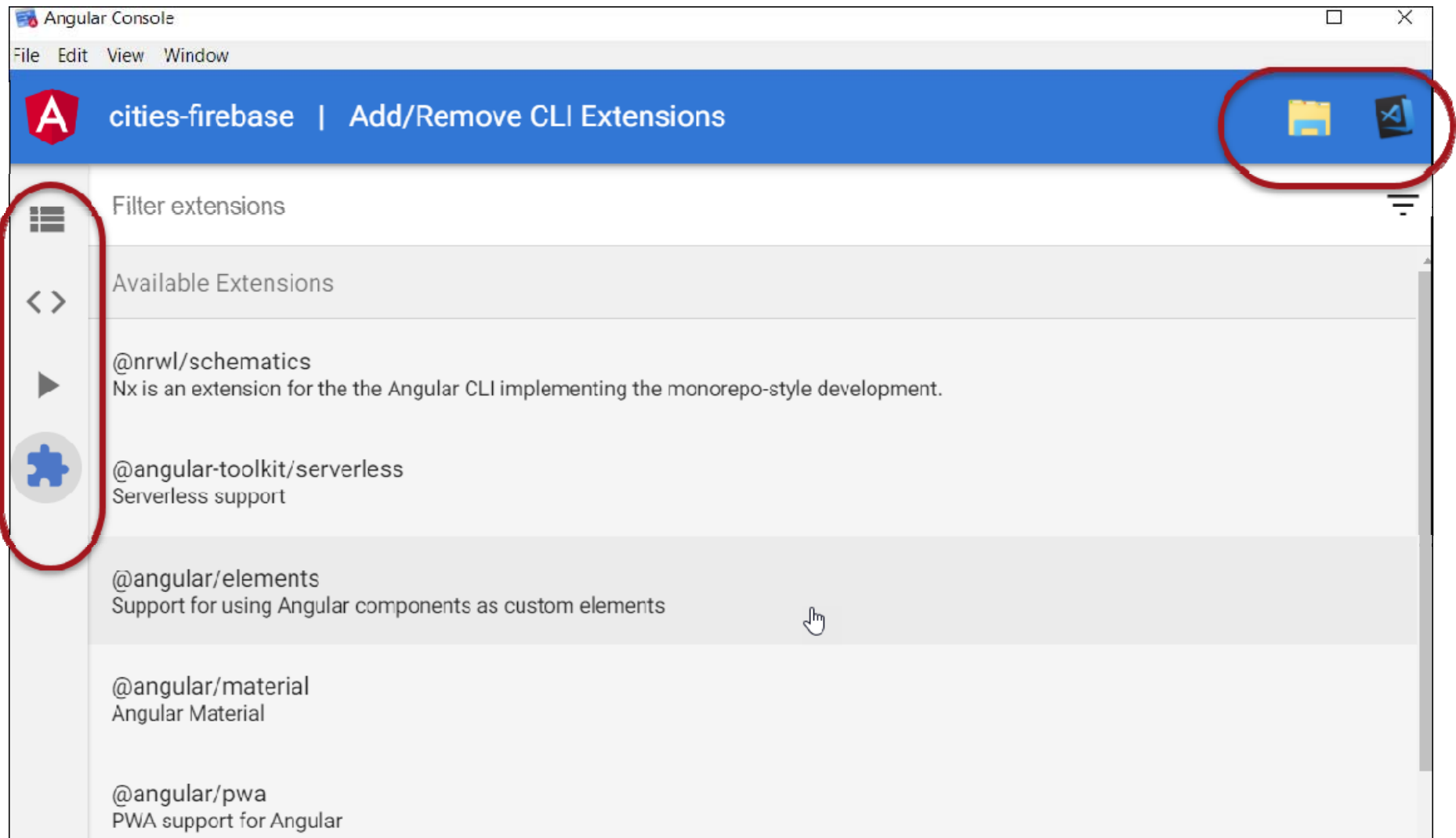
<https://angularconsole.com/>

Angular Console

- By nrwl.io, team of Victor Savkin and Jeff Cross
- Visual interface to the CLI
 - Code generation
 - Run Custom NPM scripts
 - Discover and install extensions
 - Build CLI commands visually – no need to remember all shortcuts
 - Integrated terminal output
 - Create new projects, import existing projects

*“A Gateway for
Beginners. A Powertool
for Experts.”*





More background information

The screenshot shows the SitePoint website interface. At the top, there is a dark navigation bar with the SitePoint logo, a menu icon, and links for Courses, Books, Community, Login, and Create Free Account. Below this is a white navigation bar with categories: HTML & CSS, JAVASCRIPT, PHP, DESIGN & UX, WEB, WORDPRESS, SEO BY WOORANK, and MICROSOFT TECH. The main content area has an orange background with a pattern of tools. A white box contains the article title 'The Ultimate Angular CLI Reference Guide' by Jurgan Van de Moere, dated April 25, 2017. Below the title is a white box with the text 'Microsoft - helping keep SitePoint free!'. The article image shows a book with the Angular logo on its cover, next to a lit candle. On the right side, there is a 'RECOMMENDED' section with a list of four articles.

JavaScript Article By Jurgan Van de Moere April 25, 2017

The Ultimate Angular CLI Reference Guide

Microsoft - helping keep SitePoint free!

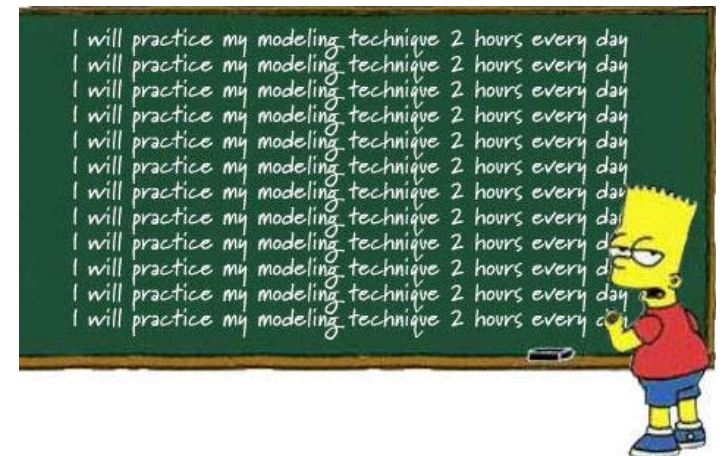
RECOMMENDED

- 1 Managing State in Aurelia: How to Use Aurelia with Redux
- 2 Create Your Own Yeoman-Style Scaffolding Tool with Caporal.js
- 3 5 Time-Saving Uses for WP-CLI Automation
- 4 Easy AngularJS Authentication with Auth0

<https://www.sitepoint.com/ultimate-angular-cli-reference/>

Workshop

- Download and install Angular Console
- Generate a new project with it
- *OR:*
- Import an existing project
- Generate a new component or a new service with it
- Run some scripts from within Angular Console (start, build, serve)
- Add some new CLI extensions, for instance
 - @angular/material
 - @angular/elements
 - See how/where they are installed





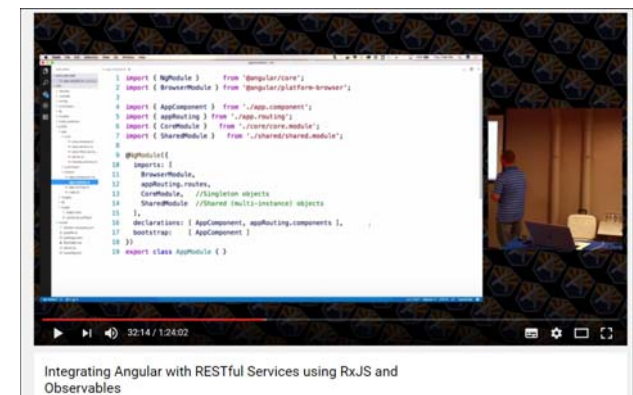
Multiple modules

Splitting your application into separate, reusable modules

Modules

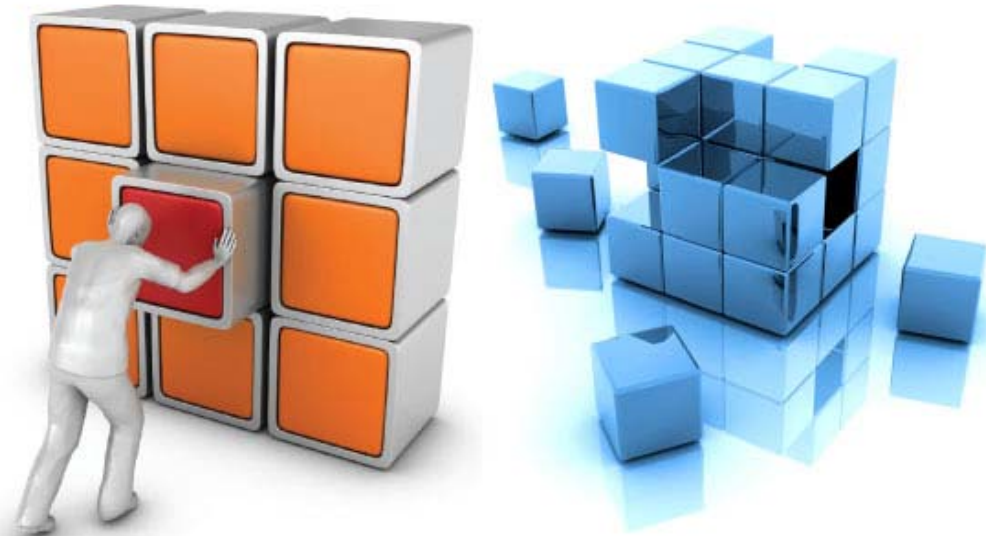
- Introduced in Angular 2-rc.5
- Successor of Angular 1 `angular.module('myApp', [...])`
- Divide your app into *logical* and often *reusable* pieces of code
- Keyword : **code organization**

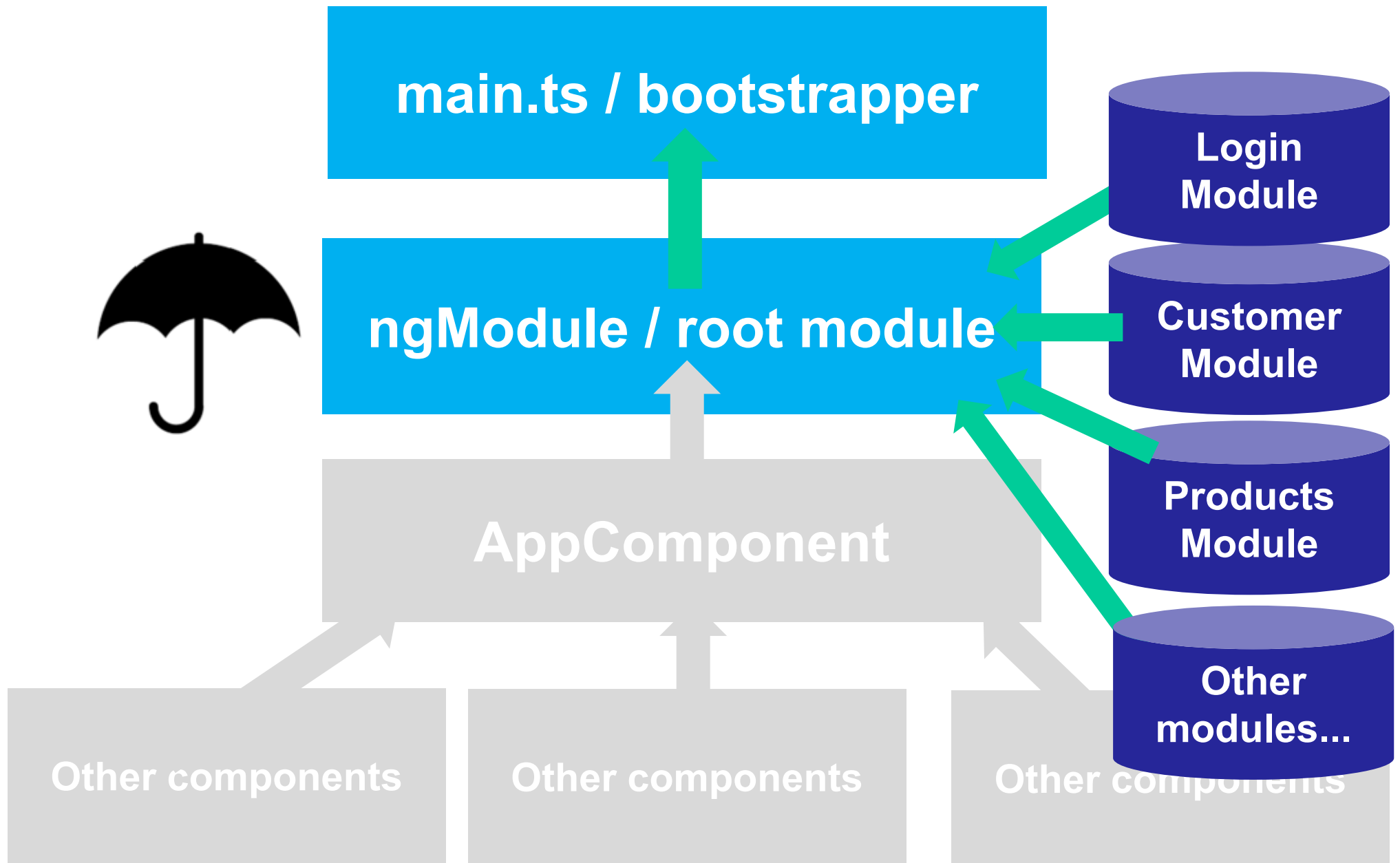
- Recommendation by John Papa/Dan Wahlin for larger projects:
- Use one AppModule - the root of your app
- Use one CoreModule - containing all *singletons* in your app
- Use one SharedModule - containing all shared resources, possible multiple instances
- Use additional modules *per feature*
- <https://www.youtube.com/watch?v=YxK4UW4UfCk>



Application – multiple Modules

- *Reuse* of Components, Pipes, Routes and Services etc. over different apps
- *Wrap* each set of logical related components, services, etc. in its own module.





Steps

1. Create a new module

- Optional: test first with `--dry-run`
- `ng generate module customers --dry-run`

2. Create component(s) inside that module

- Again: test first with `--dry-run`
- `ng generate component customers --module customers --dry-run`

3. Apply UI, logic, etc. to your component

4. Export your component inside `customer.module.ts`

- `exports : [CustomerComponent],`
- Otherwise it can't be used in other components!

5. Provide new module to `app.module.ts`

- `imports: [CustomerModule]`

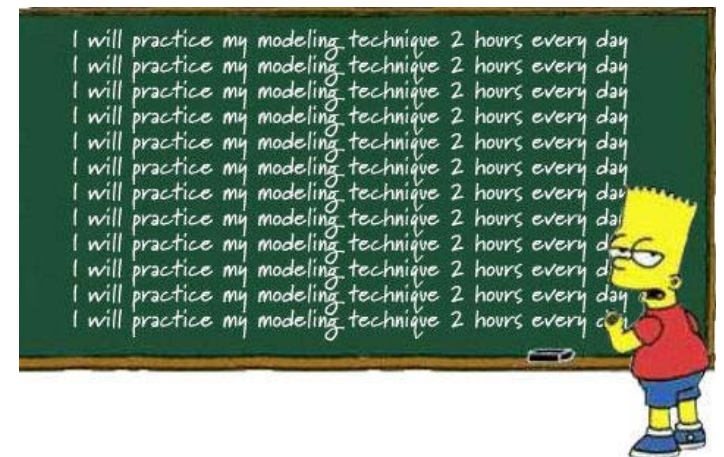
Optional : SharedModule

- Reuse components in multiple modules? Use a SharedModule
 - `ng g m shared` – shorthand notation
- Create components inside SharedModule
- Import SharedModule in other modules
- It doesn't have to be in AppModule if you don't use it directly!
- It *does* add size to module bundles AFAIK
 - Modules need to be able to run on their own.



Workshop

- Open ../100-multiple modules.
- Create a new module
- Create a new component inside this new module and give it some UI.
- Include the module in the Main Module and show it besides other modules
- Include the Search Component in your own module
- *OR:*
- Add Multiple Modules from scratch to your own application, using the steps described in this module.



How to structure feature modules



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Why and how to structure Features in Modules in Angular

This might sound pretty basic, but I encounter these challenges over and over in customer projects and it's still an ongoing discussion internally.

A central project goal in a recent Angular project was to design features and UI components for reusability. To achieve this, we need to make sure our code is well isolated and has a simple and clear dependency model.

Prologue: Feature vs. Technical Project Structure

When building small apps and looking at common code samples in the internet a lot of devs (including myself) tend to come up with a project structure like this:

```
MYAPP
├── src
│   ├── app
│   │   ├── components
│   │   │   ├── home
│   │   │   │   ├── home.component.html
│   │   │   │   └── home.component.ts
│   │   │   └── user
│   │   │       └── user.component.html
```

<https://medium.com/@philippbauknecht/why-and-how-to-structure-features-in-modules-in-angular-d5602c6436be>