



# What's new in Angular v6?



# Google Developer Expert



# International Speaker



*Spoken at 81 events in  
24 countries*

# International Speaker



*Spoken at 81 events in  
24 countries*

# Blogger



## Google Developers Experts



Writer ▾



Applause from Houssein Djirdeh, Chau Nguyen, and 273 others

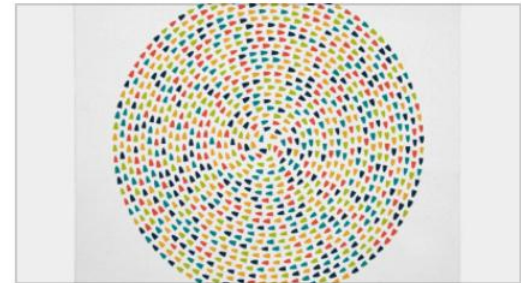
### Angular—Testing Guide (v4+)

Nine easy-to-follow examples using TestBed, [ComponentFixture](#), and [TestBed](#).



Applause from Seyed Mostafa Meshkati, Coskun Deniz, and 141 others

### Angular — Supercharge your Router transitions using new animation features (v4.3+)



Applause from Aaron Frost, Angular Academy, and 61 others

### Angular — Applying Motion principles to a listing



# Community Leader





# Trainer





# Master of Ceremonies











# Angular Academy

[About](#)

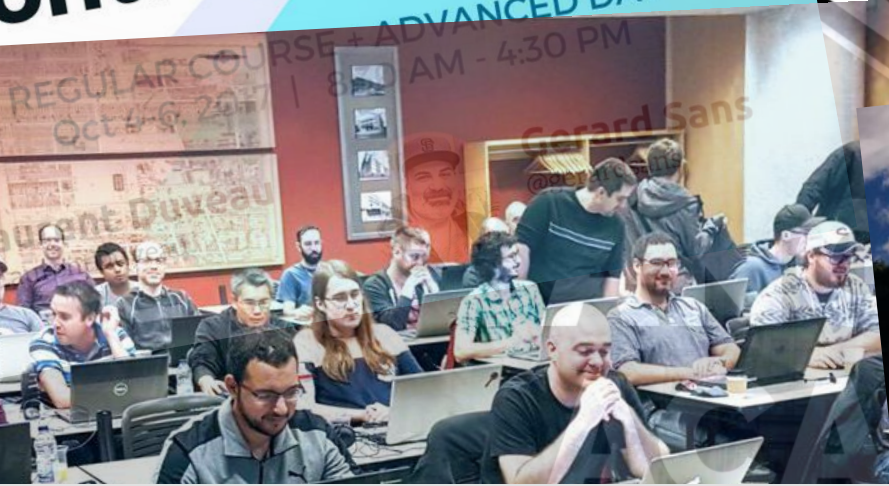
[Course outline](#)

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**Angular Academy  
Montreal (English)**

REGULAR COURSE + ADVANCED DAY  
Oct 4-6, 2017 | 8:30 AM - 4:30 PM



Learn Angular and TypeScript Now!



# *Semantic Versioning*



# Semantic Versioning

**X . Y . Z**

MAJOR

MINOR

PATCH

# Semantic Versioning

- *v2 Sept 2016*
- *v4 March 2017*
- *v5 Sept/Oct 2017*
- *v6 March 2018*
- *v7 Sept/Oct 2018*



# Long Term Support (LTS)

- *Only critical fixes and security patches*
- *Angular v5 LTS begins with v6*

# Goals

- *Fixed release calendar*
- *Incremental upgrades*
- *Stability*
- *Reliability*



*Timeline*

**2016**

**Angular v2**

Future ready



# 2017

## Angular v4



Stable and performant

4.2 Animations

4.3 HttpClient

New [angular.io](https://angular.io) website



# 2017

## Angular v5



Smaller, Faster and Easier to use

PWA support

Bazel. Build time tools

SSR. Material components

# 2018

## Angular v6



Smaller, Faster and Easier to use

Webpack 4. RxJS 6. TS 2.7

Tooling improvements

Angular Elements. Ivy Renderer

***Angular v6***

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# New Features (1/2)

- *Webpack v4. Further optimizations*
- *Services are now tree-shakeable*
- *Support inline, multiline, jsdocs comments*
- ***preserveWhitespaces** false by default*
- *APIs for: formatNumber, formatPercent, formatCurrency and formatDate*

# New Features (2/2)

- *Forms. Multiple validators for array API*
- *Router. New properties `NavigationStart`*
  - ***`navigationSource`, `restoredState`***
- *Service worker. Safety-script to uninstall*
- *Testing. New optional arguments*
  - *`whenStable(done, timeout, update)`*



BEFORE

```

@Component({
  template: `<my-element #my-element></my-element>`
})
class MyComponent {
  newChild( 'my-element' ) myElement:ElementRef
  afterViewInit() {
    this.myElement.nativeElement; // type
  }
}
    
```

TER

```
onent( {
  plate: `<my-element #my-element></my-elen
```

```
  MyComponent {
    ewChild( 'my-element' ) myElement:ElementRe
    fterViewInit() {
      his.myElement.nativeElement; // type is '
```

# *Angular CLI*

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# Angular CLI 1.7

15th Feb

- *Add Webpack v4 support*
- *Support for upgrades*
  - *ng update --next*
- *Ability to specify budgets for your apps*
  - *bundle, initial, allScript, all, anyScript, any*
  - *baseline, max, min, warning, error*
  - *bytes, KB, MB, %*



# Angular CLI v6

- *Add Webpack v4 final*
- *Upgrade to webpack-dev-server v3*
- *Support additional Lazy Load Modules*
- *Support for prepackaged schematics*
  - *ng add @angular/material*

```
compilerOptions": {  
  "experimentalDecorators": true,  
  ..  
  
  "angularCompilerOptions": {  
    "fullTemplateTypeCheck": true,  
    "preserveWhitespaces": false,  
    "enableResourceInlining": true,  
    "enableIvy": true,
```

```
import { Component } from '@angular/core';
```

```
export class AppComponent {  
  selector: 'my-app',  
  templateUrl: './app.component.html',  
  styleUrls: [ './app.component.css' ]  
}
```

```
export class AppComponent { }
```

```
import { Component } from '@angular/core';
```

```
@Component({
```

```
  selector: 'my-app',
```

```
  template: '<hello></hello>',
```

```
  styles: [`p { font-family: Lato; }`]
```

```
})  
export class AppComponent { }
```





***RxJS v6***

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# RxJS v6 Goodies

- *Friendly imports*
  - *rxjs, rxjs/operators*
- *EcmaScript spec compliant*
  - *Pipeable operators*
  - *Avoid reserved keywords*
- *Simplified API*
  - *Result Selectors removed*

# Operator Renames

do



***tap***

throw



***throwError***

switch



***switchAll***

finally



***finalize***



# Getting odd numbers - RxJS v5.5

```
import { Observable } from 'rxjs/Observable';  
import 'rxjs/add/observable/interval';  
import 'rxjs/add/operator/filter';
```

```
const isOddNumber = (x: number) => x % 2 !== 0;  
Observable.interval(1000)  
  .filter(isOddNumber);
```

```
0--1--2--3--4--5-- interval  
--1-----3-----5-- filter
```

# Filtering odd numbers - RxJS v6

```
import { interval } from 'rxjs';
import { filter } from 'rxjs/operators';

const isOddNumber = (x: number) => x % 2 !== 0;

interval(1000).pipe(
  filter(isOddNumber)
)
```

```
0--1--2--3--4--5-- interval
--1-----3-----5-- filter
```

# Handling - RxJS v5.5

```
import { Observable } from 'rxjs/Observable';  
import 'rxjs/add/observable/throw';  
import 'rxjs/add/observable/finally';
```

```
observable.throw("💩").subscribe({  
  error: e => console.log(`Error: ${e}`)
```

```
observable.throw("💩")  
  .catch(e => of("No worries. Sorted! 😊"))  
  .finally(() => { /* code */ })  
  .subscribe(v => console.log(v));
```

# Error Handling - RxJS v6

```
import { throwError } from 'rxjs';  
import { catchError, finalize } from 'rxjs';
```

```
throwError("💩").subscribe({  
  error: e => 1(`Error: ${e}`)
```

```
throwError("💩").pipe(  
  catchError(e => of("No worries. Sorted!")),  
  finalize(() => { /* code */ }),  
).subscribe(v => 1(v));
```

***Animations***

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```

v [@fade]="fade" fast></div>
v [@fade]="{ value: fade, params: { type: 'fast'
hasAttribute = (attribute: string) =>
mState: string, toState: string,
ement: any, params: {[key:string]: any}
boolean =>
ent.hasAttribute(attribute) || (params && params.

const fade = trigger('fade', [
e('fadeIn', style({ opacity: 1 })),
e('fadeOut', style({ opacity: 0.1 })),
sition(hasAttribute("fast"), animate('100ms linear
sition('fadeIn <=> fadeOut', animate('400ms linear

```

***Forms***

---

```
class HelloComponent {
  version: FormControl = new FormControl('6.0.0', Validators.required);
  formGroup: FormGroup = new FormGroup({ v: this.version });

  constructor() {
    this.form.statusChanges // VALID INVALID PENDING DROPPED
      .subscribe(status => console.log(status));

    this.version.markAsPending(); //
    this.version.markAsPending({onlySelf: true}); //
    this.version.markAsPending({emitEvent: false}); //
  }
}
```

***Breaking  
Changes***





# Overview

- *Forms. New PENDING event may require review current code*
- *Dropped support <template> Element*
- *No animation imports @angular/core*
- *Baseline dependencies*
  - *Webpack v4, TS 2.7 and RxJS v6*
  - *SSR. Domino v2*



***Future***

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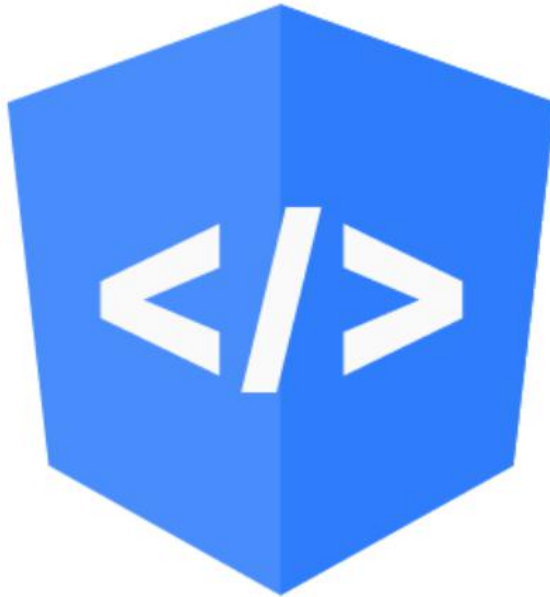




# Bazel

{Fast, Correct} - Choose two

# Angular Elements



# Ivy Compiler

Smaller

Simpler  
Debugging

Faster  
Compilation

Non Breaking Change





