



Angular & RxJS

Oct 31, 2017



Ward Bell



Breeze

- ABOUT US
- COMMUNITY
- CUSTOMERS**
- SERVICES
- STORE
- DOWNLOAD

CUSTOMERS

Our Clients

Our Partners

Our clients

Our Professional Services team has been helping companies like yours succeed for over ten years. We know the issues they face and we adapt our products to meet their needs.



RXJS OBSERVABLES IN ANGULAR

11 October, 2017

Ward Bell & Sander Elias



Agenda

- **What are Observables?**
- **Angular observable APIs**
- **Useful RxJS operators**
- **Write your own observables**

Events

- Button clicked
- Value changed in UI
- Timer
- Remote service call
- Animation finished
- Push notifications
- Message bus

Why Observables

- **Essential to Angular**
- **Composable: legos for events**
- **Solve hard event coordination problems**

Scenarios

- Search continuously
- Stock/news ticker (Firebase, SignalR, Azure Mobile App Service)
- Drag and drop
- Retry (some) failed query
- Get first available credit score
- Adjust access per user role
- Page view analytics
- Refresh view when id changes (navigation)
- Authenticate when request requires it
- Get value from cache, then re-query

Observables & Arrays

You **PULL** items from the array

Observables **PUSH** items to you.

Array Fns

▼ Methods

`Array.from()`

`Array.isArray()`

 `Array.observe()`

`Array.of()`

`Array.prototype.concat()`

`Array.prototype.copyWithin()`

`Array.prototype.entries()`

`Array.prototype.every()`

`Array.prototype.fill()`

`Array.prototype.filter()`

`Array.prototype.find()`

`Array.prototype.findIndex()`

`Array.prototype.forEach()`

`Array.prototype.includes()`

`Array.prototype.indexOf()`

`Array.prototype.join()`

`Array.prototype.keys()`

`Array.prototype.lastIndexOf()`

`Array.prototype.map()`

`Array.prototype.pop()`

4 | // 2

Access (index into) an Array item

```
1 | var first = fruits[0];  
2 | // Apple  
3 |  
4 | var last = fruits[fruits.length - 1];  
5 | // Banana
```

Loop over an Array

```
1 | fruits.forEach(function(item, index, array) {  
2 |     console.log(item, index);  
3 | });  
4 | // Apple 0  
5 | // Banana 1
```

Add to the end of an Array

```
1 | var newLength = fruits.push('Orange');  
2 | // ["Apple", "Banana", "Orange"]
```

Remove from the end of an Array

Observable operators

RxJS 5 Operators By Example

A complete list of RxJS 5 operators with clear explanations, relevant resources, and executable examples.

Prefer a split by operator type?

Contents (In Alphabetical Order)

- buffer
- bufferCount
- bufferTime ★
- bufferToggle
- bufferWhen
- catch ★
- combineAll
- combineLatest ★
- concat ★
- concatAll
- concatMap ★
- concatMapTo
- create
- debounce
- debounceTime ★
- defaultIfEmpty
- distinctUntilChanged ★
- delay
- delayWhen
- do ★
- every
- empty
- expand
- filter ★
- first
- forkJoin
- from ★
- fromEvent
- fromPromise ★
- groupBy
- ignoreElements
- interval

- interval
- last
- let
- map ★
- mapTo
- merge ★
- mergeAll
- mergeMap ★
- multicast
- of ★
- partition
- pluck
- publish
- race
- range
- retry
- retryWhen
- sample
- share ★
- single
- skip
- skipUntil
- skipWhile
- startWith ★
- take ★
- takeUntil ★
- takeWhile
- throttle
- throttleTime
- throw
- timer
- toPromise
- scan ★
- switchMap ★
- window
- windowCount
- windowTime
- windowToggle
- windowWhen
- withLatestFrom ★
- zip

RxJS in Angular

Major Angular Observable APIs

- **HttpClient**
- **Async Pipe**
- **Forms**
- **Router**

Do I need to unsubscribe?

1. Are you listening to a long-lived source?
2. If so, does that source complete “soon enough”?
3. If not, you must unsubscribe.

When and how to unsubscribe?

When component is destroyed

Two primary ways:

1. `.unsubscribe()`
2. `.takeUntil(onDestroy)`

Resources

- Presentation code <https://github.com/wardbell/rxjs-in-ng>
- Egghead videos: <https://egghead.io/technologies/rx>
- Ben Lesh blog: <https://medium.com/@benlesh>
- Rob Wormald – Angular & RxJS: <https://www.youtube.com/watch?v=WWR9nxVx1ec>
- “Learn RxJS”: <https://github.com/btroncone/learn-rxjs/blob/master/README.md>

Thank You!



Ward Bell
@wardbell

