NgModel & Two Way Data Binding In Angular

13 Comments / March 9, 2023 / 5 minutes of reading

⟵ Event Binding Angular Tutorial ngmodelchange ⟶

In this article let us explore the two way data binding in Angular and how NgModel implements the two-way binding in Angular Forms. The `ngModel` is a built-in directive and is part of the FormsModule. The Two-way binding uses the syntax `[()]`

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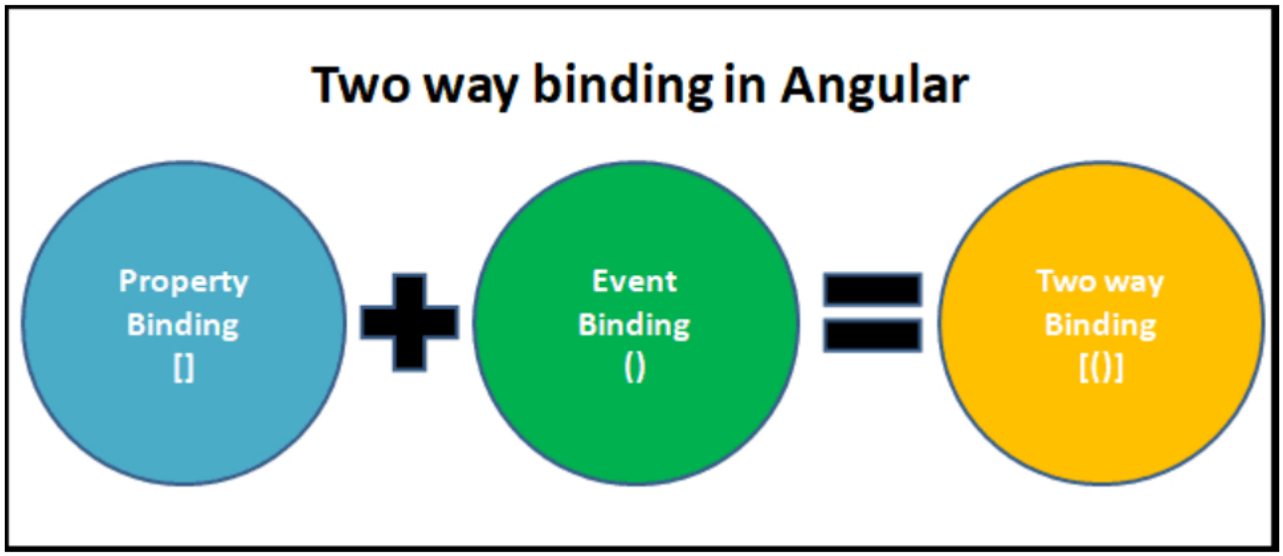
What is Two way data binding

Two way data binding means that changes made to our model in the component are propagated to the view and that any changes made in the view are immediately updated in the underlying component data.

Two way data binding is useful in data entry forms. Whenever a user makes changes to a form field, we would like to update our model. Similarly, when we update the model with new data, we would like to update the view as well

The two way data binding is nothing but both property binding & event binding applied together. Property Binding is one way from component to view. The event binding is one way from view to component. If we combine both we will get the Two-way binding.



Two way using property & Event Binding

The following example shows how we can achieve two-way binding using the combination of property binding & event binding

Create a new Angular application

copy the following code to `app.component.html`

```

h2>Example 1</h2>
<input type="text" [value]="name" (input)="name=$event.target.value">
<p> You entered {{name}}</p>
<button (click)="clearName()">Clear</button>

```

Update the `app.component.ts` with the following code.

```

name=""
clearName() {
  this.name="";
}


```

We bind the `name` property to the input element (`[value]="name"`). We also use the event binding `(input)="name=$event.target.value"`. It updates the `name` property whenever the input changes. The Angular interpolation updates the `{{name}}`, so we know the value of `name` property.

$event.target.value raises the error `Property 'value' does not exist on type 'EventTarget'` if `fullTemplateTypeCheck` is set to true under `angularCompilerOptions` in the `tsconfig.json`.

The error is due to the fact that the value property is not guaranteed to exist in the `$event.target`.

To solve this problem either you can use the `$any` typecast function (`$any($event.target).value`) to stop the type checking in the template or set

`fullTemplateTypeCheck` to `false` in `tsconfig.json`.

Two-way binding syntax

The above example uses the event & property binding combination to achieve the two-way binding. But Angular does provide a way to achieve the two-way binding using the syntax `[()]`. Note that both square & parentheses are used here. This is now known as **Banana in a box** syntax. The square indicates the Property binding & parentheses indicates the event binding.

For Example

```
<someElement [(someProperty)]="value"></someElement>
```

The above syntax sets up both property & event binding. But to make use of it, the property must follow the following naming convention.

If we are binding to a settable property called `someProperty` of an element, then the element must have the corresponding change event named `somePropertyChange`

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But most HTML elements have a `value` property. But do not have a `valueChange` event, instead, they usually have an `input` event. Hence they cannot be used in the above

syntax

For Example, the following will not work as there is no `valueChange` event supported by the `input` element.

Hence we have a `ngModel` directive.

What is ngModel

The Angular uses the `ngModel` directive to achieve the two-way binding on HTML Form elements. It binds to a form element like `input`, `select`, `selectarea`. etc.

Internally It uses the `ngModel` in property, binding to bind to the `value` property and `ngModelChange` which binds to the input event.

How to use ngModel

The `ngModel` directive is not part of the Angular Core library. It is part of the `FormsModule` library. You need to import the `FormsModule` package into your Angular module.

In the template use the following syntax

```

<input type="text" name="value" [(ngModel)]="value">

```

The `ngModel` directive placed inside the square & parentheses as shown above. This is assigned to the Template Expression. Template Expression is the property in the component class

ngModel Example

Import FormsModule

Open the `app.module.ts` and make the following changes

```
import { FormsModule } from '@angular/forms';
```

Template

```
<h2>Example 2</h2>
<input type="text" name="value" [(ngModel)]="value">
<p> You entered {{value}}</p>
<button (click)="clearValue()">Clear</button>
```

Component

```
value="";
clearValue() {
  this.value="";
}
```

The `ngModel` data property sets the element's value property and the `ngModelChange` event property listens for changes to the element's value.

Run the project and see that as you modify the name, the component class model is automatically updated.

Custom Two-way binding

As we mentioned earlier the `[()]` to work, we need to have a `property` with the change event as `<nameofProperty>Change.`

We do not have any HTML Elements which follows the above naming conventions, but we can create a custom component

create new component and name it as `counter.component.ts`. copy the following code.

```

import { Component, Input, Output, EventEmitter } from '@angular/core';
@Component({
 selector: 'counter',
 template: `
    <div>
      <p>
        Count: {{ count }}
        <button (click)="increment()">Increment</button>
      </p>
    </div>
  `
})
export class CounterComponent {

  @Input() count: number = 0;
  @Output() countChange: EventEmitter<number> = new EventEmitter<number>();

  increment() {
   this.count++;
   this.countChange.emit(this.count);
 }
}


```

The component has two properties one is input property count decorated with `@Input()`. The other in is an event (or output property), which we decorate with `@Output()`. We name the input property as `count`. Hence the output property becomes `countChange`

Now we can use this component and create two-way binding to the `count` property using the syntax `[(count)]`.

```
<h2>Example 3</h2>
<counter [(count)]="count"></counter>
<p> Current Count {{count}}</p>
<button (click)="clearCount()">Clear</button>
```

Summary

The two-way binding is a simple, but yet powerful mechanism. We use Property binding & Event binding to achieve the two-way binding. Angular does have a [(value)] syntax to which sets up the two-way binding. It automatically sets up property binding to the value property of the element. It also sets up the event binding to `valueChange` Property. But since we hardly have any HTML element, which follows those naming conventions unless we create our own component. This is where `ngModel` directive from `FormsModule` steps in and provides two way binding to all the known HTML form elements.

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8. ngModelChange & Change Event
9. Adding Child Component in Angular

13 thoughts on “ngModel & Two way Data binding in Angular”

BEROS HERMANOS

FEBRUARY 21, 2023 AT 6:09 PM

Can you change the code under “Two way using property & event binding” to this:

You entered {{name}}

Clear

Reply

PRATHEESH RUSSELL

OCTOBER 30, 2022 AT 2:33 PM

We can add a directive like the following

```
import { Directive, EventEmitter, HostListener, Output } from '@angular/core';
```

```
@Directive({
selector: '[appTwoWayInput]',
})
export class TwoWayInputDirective {
@Output('valueChange') update = new EventEmitter();
@HostListener('input', ['$event'])
handleInputChange(event) {
this.update.emit(event.target.value);
}
}
```

and bind to value of inputs

Reply

HA

AUGUST 28, 2021 AT 1:34 AM

“The two way data binding nothing but both property binding & event binding applied together. Property Binding is one way from view to component. The event binding is one way from component to view”.

It is incorrectly mentioned about the property and event binding direction. It needs a correction.

Reply

TEKTUTORIALSHUB

AUGUST 28, 2021 AT 8:26 AM

Updated the article. Thanks

Reply

KARAN

FEBRUARY 2, 2022 AT 2:27 PM

But as per Angular.io Docs, Property binding moves a value in one direction, from a component's property into a target element property. And Event binding lets you listen for and respond to user actions from view to component.

Reply

ANONYMOUS
JULY 20, 2021 AT 5:55 PM

Can I have the complete code through github repo

Reply

ANONYMOUS
FEBRUARY 19, 2021 AT 6:51 PM

Two way using property & Event Binding
for this example getting this error
Property 'value' does not exist on type 'EventTarget'.
for this line

Reply

TEKTUTORIALSHUB
FEBRUARY 20, 2021 AT 11:00 PM

The error is due to typescript checking types in templates.

You need to cast `$event.target` to any as shown below

(input)="name=$any($event.target).value

Also, I have updated the article again with notes

Reply

ANONYMOUS
JANUARY 11, 2021 AT 2:33 PM

how to retrive data in table when click on submit

Reply

ANONYMOUS
JANUARY 7, 2021 AT 2:47 PM

Hi @TEKTUTORIALSHUB,
I found something wrong in What is Two way binding section. In third paragraph, it is written like… event binding is one way from component to view and Property Binding is one way from view to component which is WRONG.
I hope u will correct it soon…
By the way, your tutorials are awesome.
Thank you _/_

Reply

V S M K

JANUARY 4, 2021 AT 9:30 PM

Great Content…..I'm new to Angular….
Thank you.

Reply

JULIAN HONMA

NOVEMBER 11, 2020 AT 8:23 PM

There's some missing code for the last section "Custom Two-way binding".

app.component.ts:

```
import { Component } from '@angular/core';
@Component({
selector: 'app-root',
templateUrl: './app.component.html',
styleUrls: ['./app.component.css']
})
export class AppComponent {
count: number = 0;
clearCount() {
this.count = 0;
}
}
```

Also if you generate your counter.component.ts automatically, the @Component.selector will be `app-counter`, make sure to rename it to `counter` to match the html in app.component.html ( )

Reply

ASHOK

SEPTEMBER 29, 2021 AT 8:44 PM

Instead of adding clearCount() to AppComponent, it should be added to CounterComponent class, as it has functionality related to the count property. Moreover, the below code should be added to the template section of CounterComponent:
Current Count {{count}}
Clear

The AppComponent html file should only have tag.

Reply

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