

Components & Component-based Architecture



Components only control their own View and Data

- ✧ Never modify data or DOM outside their own scope
- ✧ Modifying creates side-effects that lead to chaos
- ✧ Therefore, Angular components always use isolate scope



Components have well-defined public API – Inputs and Outputs

- ✧ **Inputs:** use '`<`' and '`@`' bindings only
- ✧ **Never change property of passed in object or array**
- ✧ **Outputs:** use '`&`' for component event callbacks
- ✧ **Pass data to callback through param map { key: val }**



Components have well-defined lifecycle

- ✧ `$onInit` – controller initialization code
- ✧ `$onChanges(changeObj)` – called whenever one-way bindings are updated
 - `changeObj.currentValue`, `changeObj.previousValue`
- ✧ `$postLink` – similar to 'link' in directive
- ✧ `$onDestroy` – when scope is about to be destroyed



Application is a tree of components

- ✧ Entire application should be comprised of components
- ✧ Each one would have a well-defined input and output
- ✧ 2-way data binding is minimized as much as possible

Step 1: Register Component With Module

```
angular.module('App', [])  
  .component('myComponent', {  
    templateUrl: 'template.html',  
    controller: CompController,  
    bindings: {  
      prop1: '<',  
      prop2: '@',  
      onAction: '&'  
    }  
  })
```

Normalized form.
In HTML,
use my-component



Step 1: Register Component With Module

```
angular.module('App', [])  
  .component('myComponent', {  
    templateUrl: 'template.html',  
    controller: CompController,  
    bindings: {  
      prop1: '<',  
      prop2: '@',  
      onAction: '&'  
    }  
  });
```

Simple config object.
NOT a function.



Step 2: Configure Component

```
angular.module('App', [])  
  .component('myComponent', {  
    templateUrl: 'template.html',  
    controller: CompController,  
    bindings: {  
      prop1: '<',  
      prop2: '@',  
      onAction: '&'  
    }  
  });
```

Almost always have
a template



Step 2: Configure Component

```
angular.module('App', [])  
  .component('myComponent', {  
    templateUrl: 'template.html',  
    controller: CompController,  
    bindings: {  
      prop1: '<',  
      prop2: '@',  
      onAction: '&'  
    }  
  });
```

Placed on scope with
label '\$ctrl'

Not required. Empty
function provided
automatically



Step 2: Configure Component

```
angular.module('App', [])  
  .component('myComponent', {  
    templateUrl: 'template.html',  
    controller: CompController,  
    bindings: {  
      prop1: '<',  
      prop2: '@',  
      onAction: '&'  
    }  
  });
```

'bindings' object is
the isolate scope
param mapping
definition

Step 3: Reference Props in Template

```
<div  
  ng-click="$ctrl.onAction({myArg: 'val'})">  
  {{ $ctrl.prop1.prop }} and {{ $ctrl.prop2 }}  
</div>
```



Step 4: Use Component in HTML

```
<my-component  
  prop1="val-1"  
  prop2="@parentProp"  
  on-action="parentFunction(myArg)">  
  
  {{ $ctrl.prop1.prop }} and {{ $ctrl.prop2 }}  
  
</my-component>
```

Summary

- ✧ Components encourage component-based architecture
 - But they don't enforce it 100%, so we must follow conventions
- ✧ Components should never modify data or DOM that doesn't belong to them
 - That's why it always has isolate scope and well-defined API
- ✧ Register component with `.component('name', configObj)`
- ✧ Provide controller only if you are adding extra functionality
 - Otherwise, Angular already provides an empty function for us

