

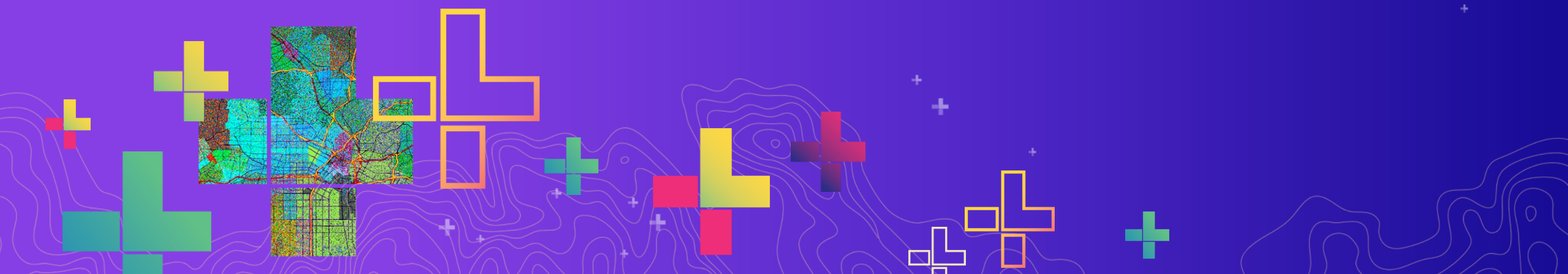


Web AppBuilder for ArcGIS: Customizing and Extending

Gavin Rehkemper

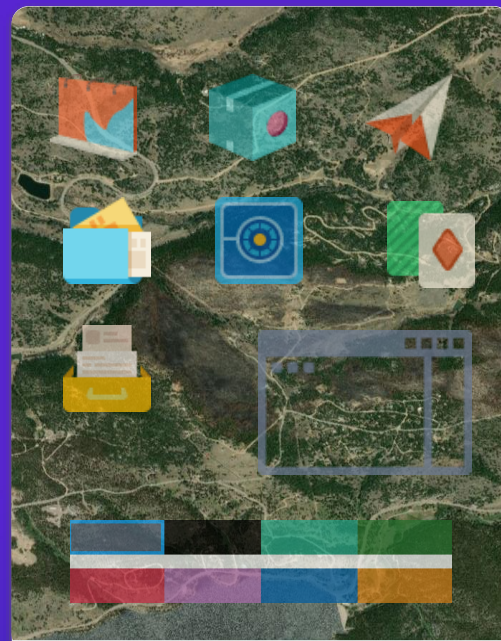
David Martinez

2020 ESRI DEVELOPER SUMMIT | Palm Springs, CA

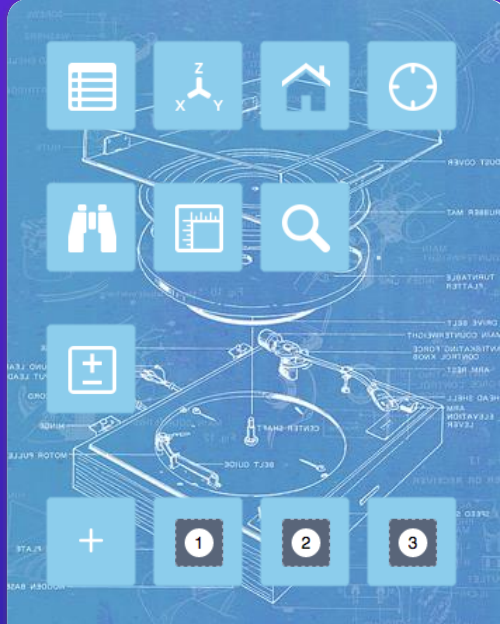




Introduction



Create a Theme



Create a Widget

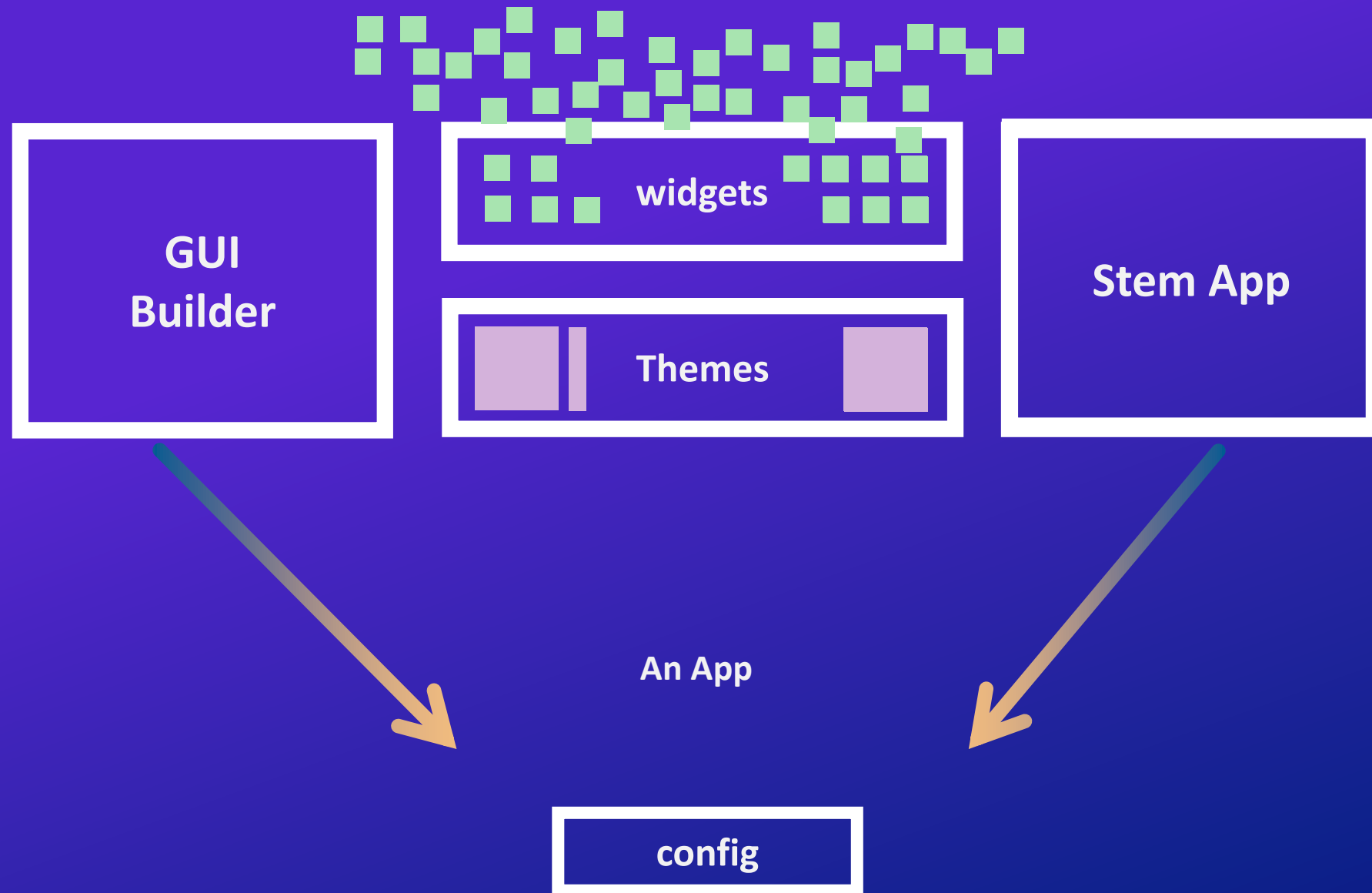


WAB Communities

Introduction



Building an App



Access Type

38%
Private

16%
Shared

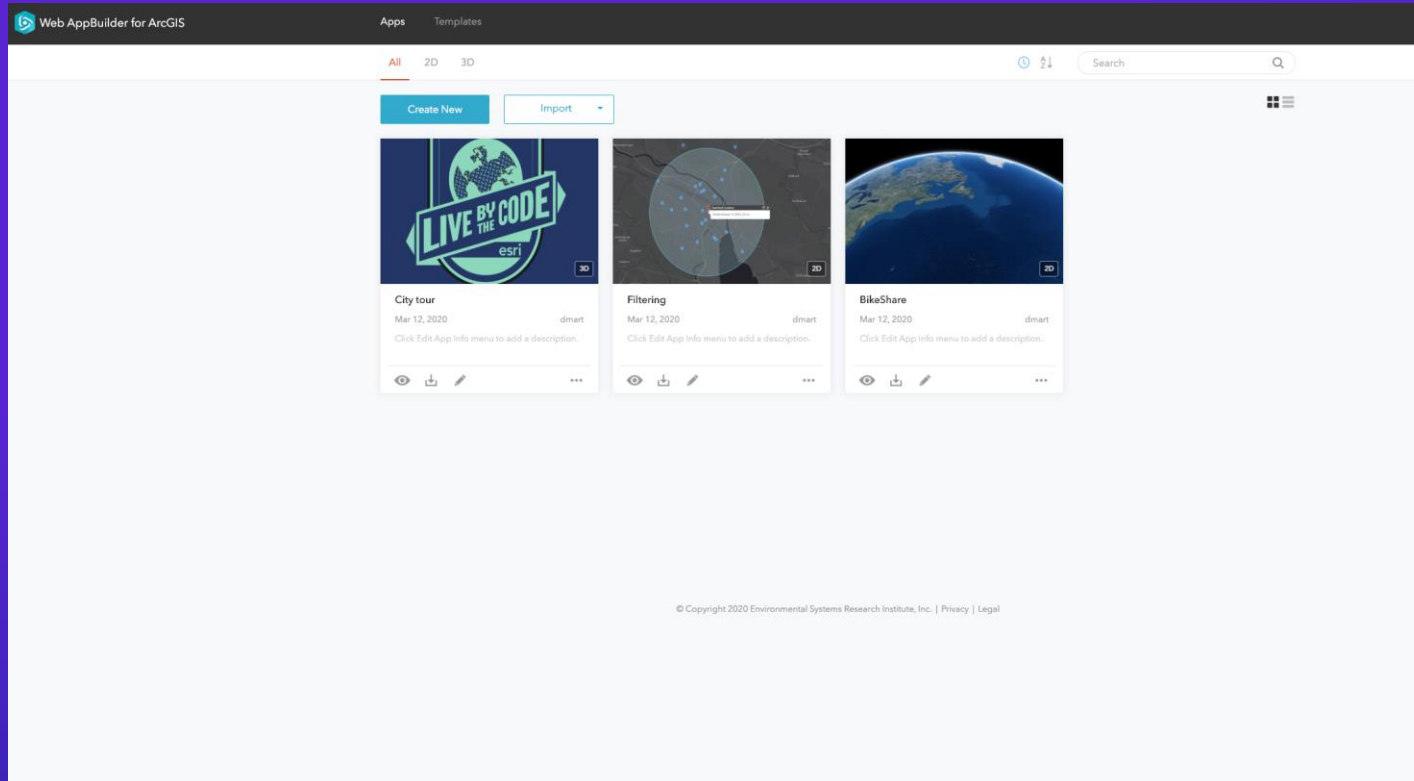
525,364
Total AppBuilder Apps

33%
Public

13%
Account



Web AppBuilder (Developer Edition)



Widget

- Execution at run time
- Configure-in, not cut/paste
- Self sufficient and distributable
- Need container, no coding block
- Has programming framework of container

Theme

- Applied at run time
- Configure-in, not modify css
- Need container
- Self sufficient and distributable
- Has programming framework of container



Widgets



It's really just a web app

MyWidget.css

MyWidget.js

MyWidget.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <meta charset="utf-8">
5 <meta name="viewport" content="initial-scale=1, maximum-scale=1, user-scalable=no">
6 <title>Add a Legend to LayerList - 4.10</title>
7 <link rel="stylesheet" href="https://js.arcgis.com/4.10/esri/themes/dark/main.css">
8 <style>
9   html,
10  body,
11  #viewDiv {
12    padding: 0;
13    margin: 0;
14    height: 100%;
15    width: 100%;
16    overflow: hidden;
17  }
18 </style>
19 <script src="https://js.arcgis.com/4.10/"></script>
20 <script>
21   require([
22     "esri/WebMap",
23     "esri/views/MapView",
24     "esri/widgets/LayerList"
25   ], function(
26     WebMap, MapView, LayerList
27   ) {
28
29     const map = new WebMap({
30       portalItem: {
31         id: "d5dda743788a4b0688fe48f43ae7beb9"
32       }
33     });
34
35     // Add the map to a MapView
36     const view = new MapView({
37       container: "viewDiv",
38       map: map
39     });
40
41     // Add a Legend instance to the panel of a
42     // ListItem in a LayerList instance
43     const layerList = new LayerList({
44       view: view,
45       listItemCreatedFunction: function(event) {
46         const item = event.item;
47         if (item.layer.type !== "group") { // don't show legend twice
48           item.panel = {
49             content: "legend",
50             open: true
51           };
52         }
53       }
54     });
55     view.ui.add(layerList, "top-right");
56
57   });
58 </script>
59 </head>
60 <body>
61   <div id="viewDiv"></div>
62 </body>
63 </html>
```



Inheriting from BaseWidget

```
define(['dojo/ base/declare', 'jimu/BaseWidget'],  
function(declare, BaseWidget){  
    var clazz = declare([BaseWidget], {  
    });  
    return clazz;  
});
```

A widget derived from the BaseWidget class



Dijit lifecycle

- postCreate
- startup
- ...



Widget events

- onOpen, onActive
- onClose, onDeActive



BaseWidget

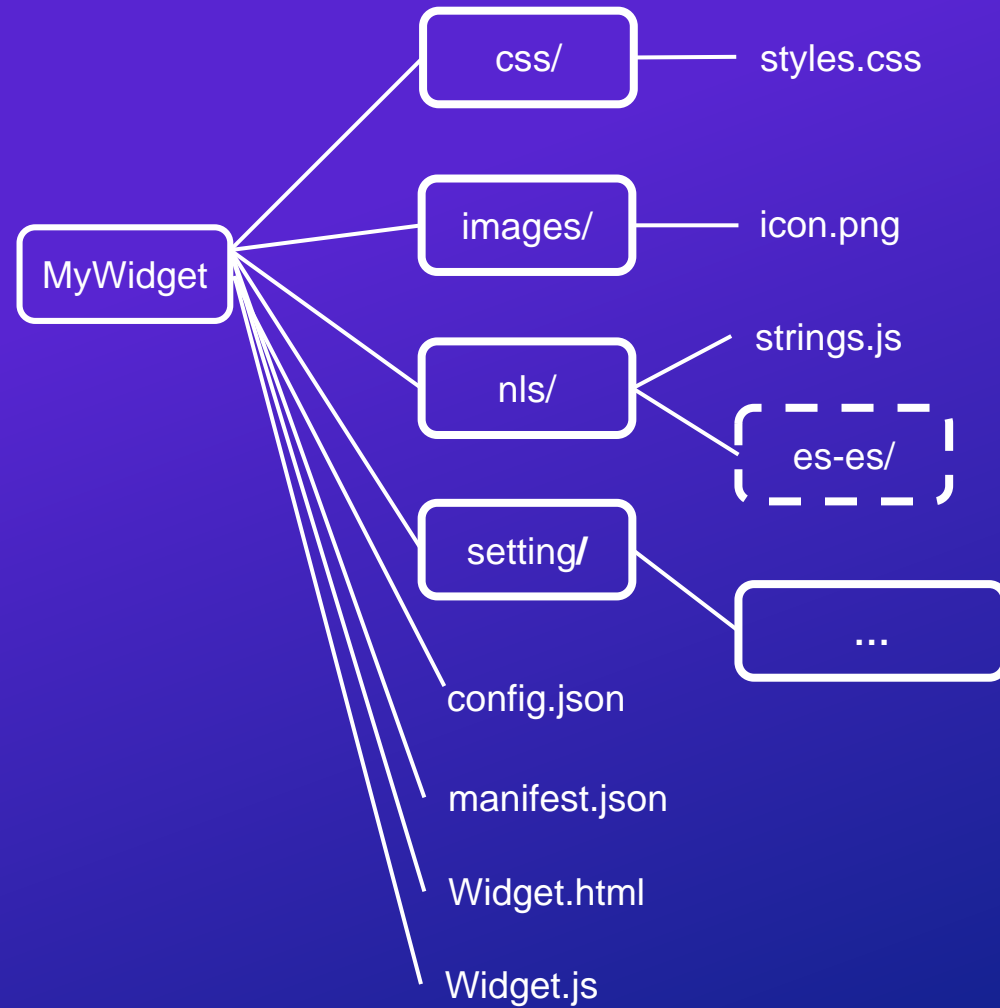
- App properties (name, icon, localization)
- App config data
- Widget's config data
- Map object
- Widget state (open, closed, active...)
- Events (open/signIn)
- Widget communication

Your job?

- Widget UI (HTML/template)
- Widget config file (JSON)
- Widget styles (CSS)
- Localization
- Your unique business logic (JavaScript)



Conventions and Structure



Getting Started

1. **Download** developer edition
2. **Connect** to organization or portal
3. **Copy** widget template
4. **Run** the builder
5. **Create** an app with your widget
6. **Build** your widget in the app



Configure your custom widget inside the builder

Configure Directions

Directions

[Change widget icon](#) [Learn more about this widget](#)

Route URL:

Geocoder URL:

Travel modes URL:

Traffic layer URL:

Geocoder options

Autocomplete

Maximum suggestions: Minimum characters:

Placeholder: Search delay:

Route options

Directions language: Directions length units:

Impedance attribute:

Preset stops

Start point: End point:

Barrier Layers

Point barriers:

Line barriers:

- Building a UI for the user:
 - Setting.js
 - Config info
 - getConfig, setConfig
 - Setting.html
 - Usual localization pattern
 - CSS

Create a new widget

<http://esriurl.com/wab20>



Theme





Theme is you

Major Components in a Theme

- **Layout**
- **Panel**
- **Style**
- **Controller**



What Composes a Theme?

- **Layout**
- **Panel**
- **Style**
- **Controler**



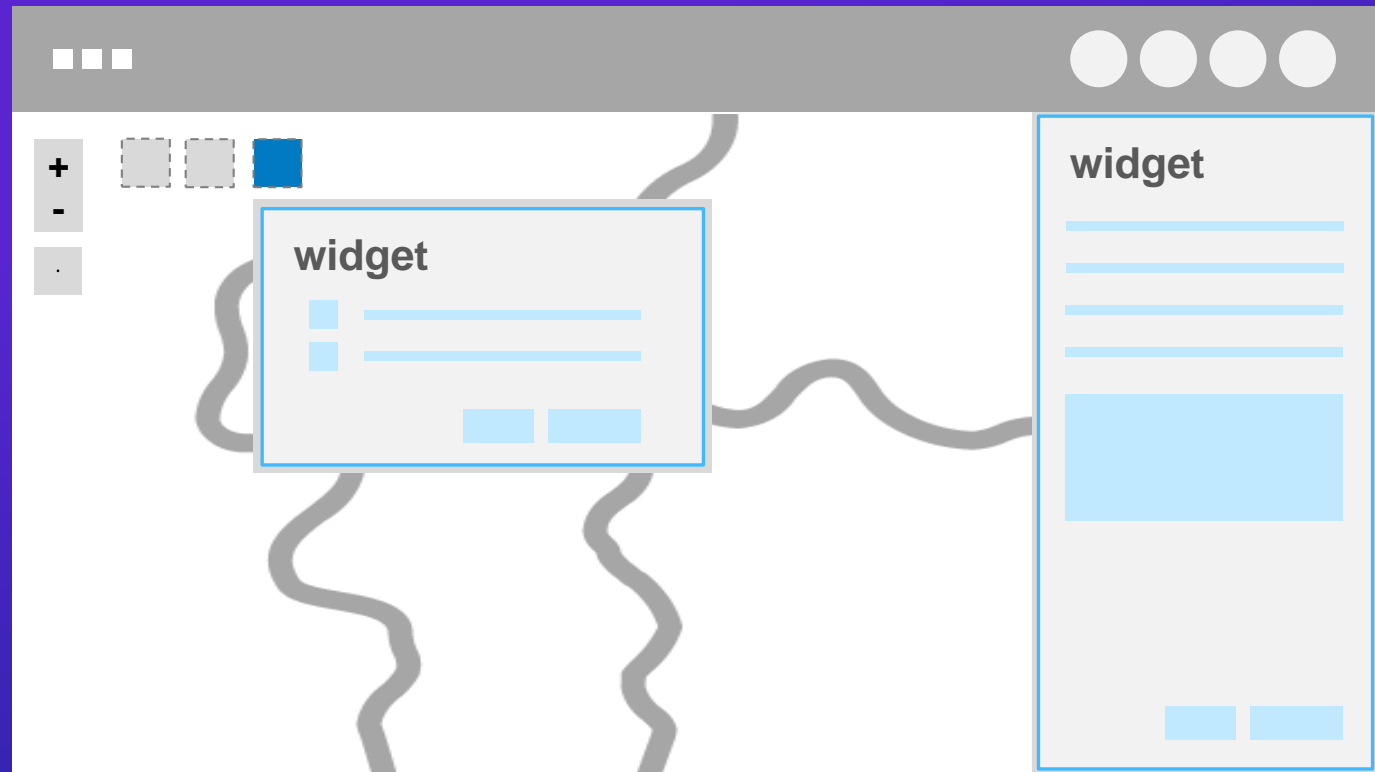
What Composes a Theme?

- Layout
- Panel
- Style
- Controller



What Composes a Theme?

- Layout
- Panel
- **Style**
- Controller



What Composes a Theme?

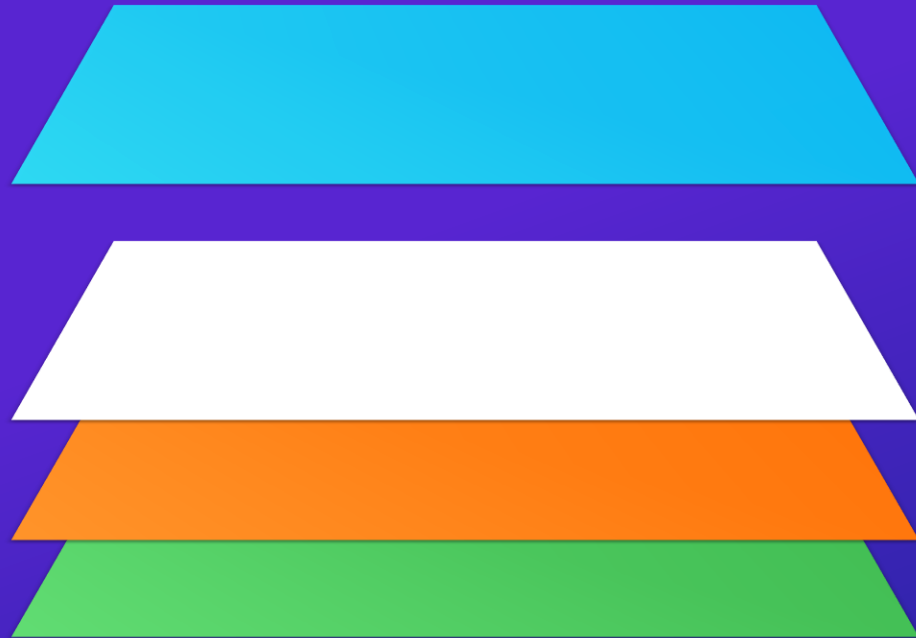
- Layout
- Panel
- Style
- **Controller**



What Makes Up The WAB UI?



How UI Libraries Work In WAB:



Theme: common.css, style.css

Jimu: jimu.css, jimu-override.css, etc.

ArcGIS API for JavaScript: esri.css

Dojo dijits: claro.css



Compare to a Functional Widget

		Controller Widget	Functional Widget
Purpose		<ul style="list-style-type: none">• Displays app information• Defines app behaviors, interactions, workflows, etc.	Provides one specific functionality to the app
Folder Structure		Very similar	
Manifest	isController	True	False
	isThemeWidget	True	False
	inPanel	Always false	May vary
	Others	Very similar	



Let's create a new theme



Community



Helpful Resources

Online help documentation

<http://doc.arcgis.com/en/web-appbuilder>

Developer Edition help documentation

<http://developers.arcgis.com/web-appbuilder>

Web AppBuilder for ArcGIS Geonet

<https://community.esri.com/community/gis/web-gis/web-appbuilder>

Slides and code from this presentation

<https://esriurl.com/wab20>



Other Online Resources

- Esri Solutions Widgets:
 - <https://github.com/Esri/solutions-webappbuilder-widgets>
- Lists of Widgets:
 - <http://esri-es.github.io/Web-AppBuilder-Custom-Widgets/>





esri

THE
SCIENCE
OF
WHERE

