

ArcGIS API for JavaScript

Customizing Widgets

- Matt Driscoll – @driskull
- JC Franco – @arfnocode

SEE
WH
OTH
CAN

Agenda

- What can be customized
- Customization approaches
- Demos
- Q & A

Customizing Widgets

- Theme
- View

Customizing Widgets

- Theme: Styles
- View: Structure/Functionality

Customization Approaches

Customization Approaches

- Customizing a theme
 - Custom styles (colors, sizing, font...)

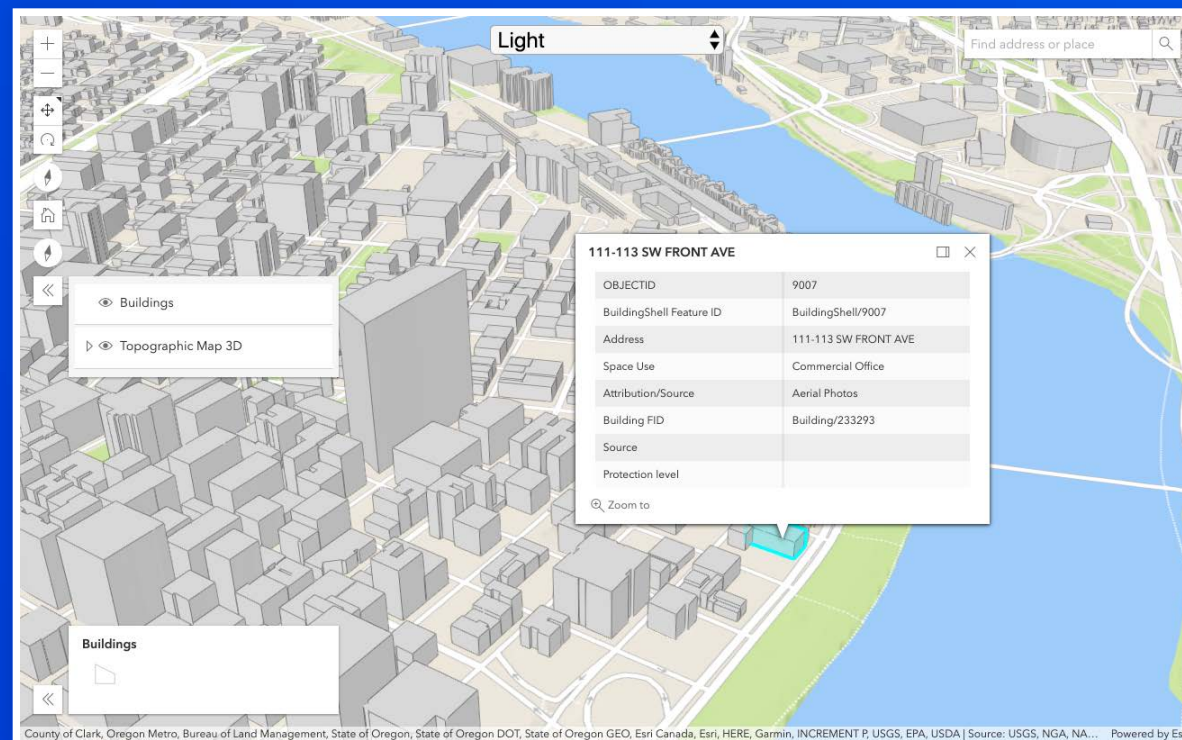
Customization Approaches

- Customizing a theme
 - Custom styles (colors, sizing, font...)
- Customizing a widget view
 - Custom UI



CONTINUE?
Y/N

Part I: Theming



Why Theme?

Why Theme?

- Match branding
- Match the map
- Contrast with the map
- User-specific requirements (e.g. bigger buttons)

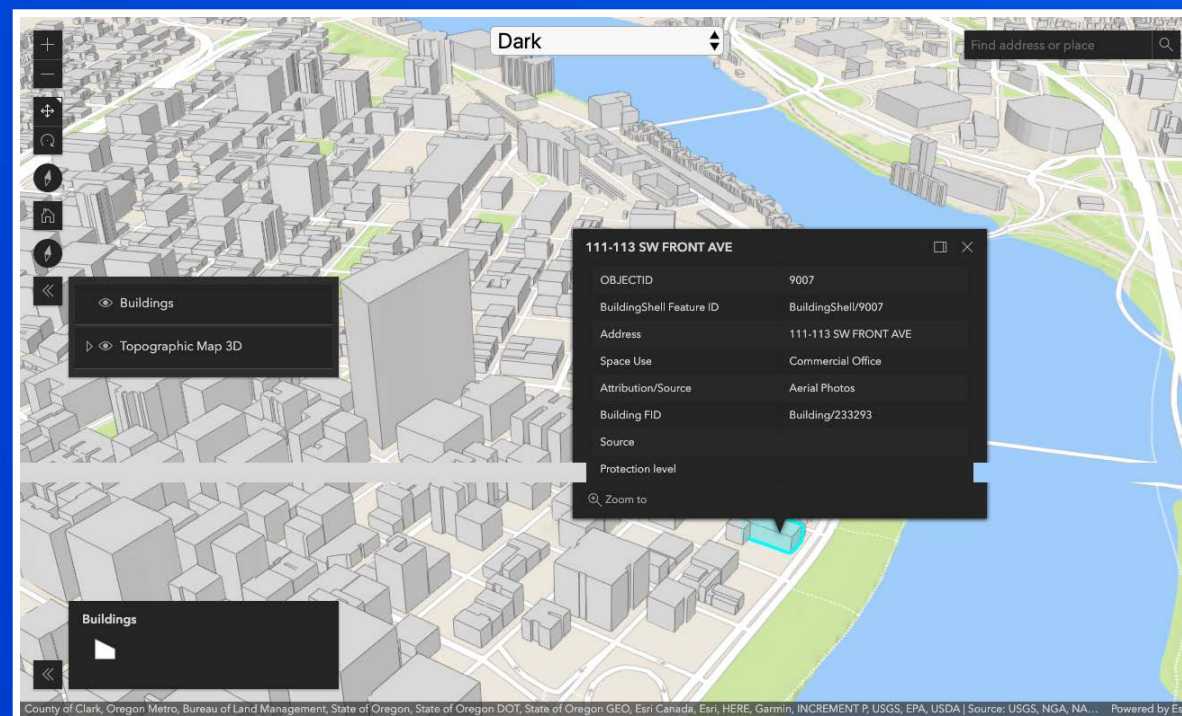
Esri Themes

10 themes are provided out-of-the-box:

Using a theme requires only a slight update to the CSS path.

```
<link href="//js.arcgis.com/4.12/esri/themes/<theme-name>/main.css" />
```

Demo: Theme Switcher



Out-of-the-box themes [↗](#)

Customizing API styling

- API CSS is using BEM[↗] methodology for class names.
 - `.my-widget__menu--open`
- Can override CSS selectors / use higher specificity
 - Sample[↗]
 - Can be tedious/brittle

Theming Technology

We use



to create our CSS.

We use



to create our CSS.



sass-lang.com  | nodejs.org  | gruntjs.com 



is a powerful scripting language for compiling CSS.



is a powerful scripting language for compiling CSS.

- Modular
- DRY
- Makes theming easy

Theming Steps

Theming Steps

1. Get theme utility
2. Use the utility
3. Customize your theme
4. Host your CSS file

Theming Setup

Theming Setup

1. Clone the theme utility[↗] `jsapi-styles.git`
2. Run `npm install`
3. Edit `sass/my-theme/main.scss`
4. See `dist/my-theme/main.css`

Step 1

Clone the theme utility repo

Step 1

Clone the theme utility repo

github.com/jcfranco/jsapi-styles 

```
git clone https://github.com/jcfranco/jsapi-styles.git
```


Step 2

```
npm install
```


Step 2

`npm install`

- Installs the necessary bits
- Creates a sample theme directory
- Compiles the CSS from the SCSS
- Spins up a preview in your default browser

Step 3

Edit your theme

```
sass/my-theme/main.scss
```

Step 3

Edit your theme

`sass/my-theme/main.scss`

Optionally, edit your app

`preview/index.html`

Step 4

Host your stylesheet and any relevant assets

Step 4

Host your stylesheet and any relevant assets

Link your stylesheet in your app

```
<!-- In your app: -->  
<link href="path/to/your/theme/main.css" />
```

Theming Goals

Theming Goals

Theme Smart

- Avoid adding additional CSS selectors
- Instead, use Sass to your advantage

Theme Structure

Let's look at how the core theme is structured

- Color
- Size
- Type

Theme Structure

Let's look at how the core theme is structured

- Color: `color.scss`
- Size: `sizes.scss`
- Type: `type.scss`

Theme Structure

Default

```
// Inside base/_color.scss  
$background-color: #fff !default;
```

Any value assignment overrides the **!default** value.

```
// Inside sass/my-theme/main.scss  
$background-color: #e3000b;
```

Theme Structure

Default

```
// Inside base/_color.scss  
$background-color: #fff !default;
```

Any value assignment overrides the **!default** value.

```
// Inside sass/my-theme/main.scss  
$background-color: #e3000b;
```

But wait...there's more!

Theme Structure

Override the core color variables...

```
$font-color: #fff;  
$interactive-font-color: #fff;  
$background-color: #e3000b;  
$button-color: #fff;
```

Theme Structure

Override the core color variables...

```
$font-color: #fff;  
$interactive-font-color: #fff;  
$background-color: #e3000b;  
$button-color: #fff;
```

...then magic!



Magic*

Using `$button-color` we can set a default hover color.

```
$button-color--hover: darken($button-color, 10%) !default;  
// ...etc
```


Theming Documentation

- [API Styling Guide](#)
- [Style Utility Readme](#)

Lets make a theme

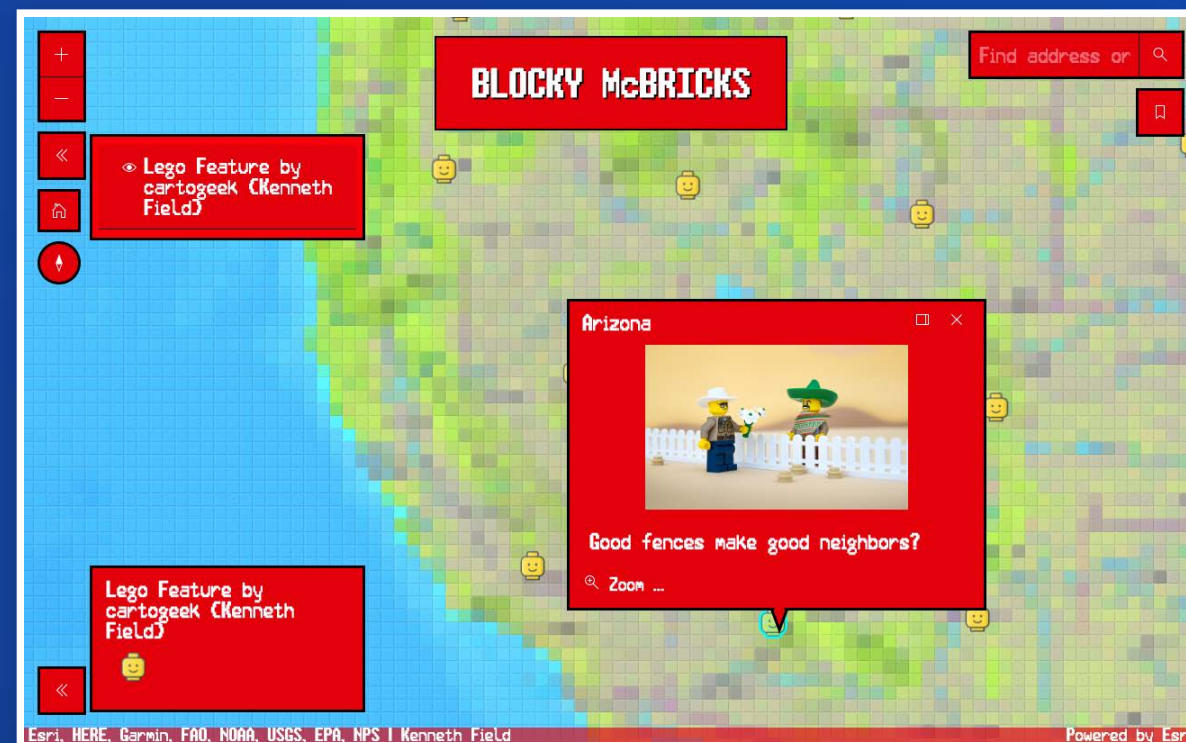
Lets make a theme

Brand colors

BRAND PALETTES		ALL BRANDS (A-Z)
	RED PANTONE: PMS 485 C (NEAREST MATCH) HEX COLOR: #E3000B; RGB: (227,0,11) CMYK: (4,100,100,1)	
	YELLOW PANTONE: PMS 3945 C (NEAREST MATCH) HEX COLOR: #FFED00; RGB: (255,237,0) CMYK: (3,1,97,0)	
	BLACK	
	WHITE	

Custom Theme

Blocky McBricks: Fine miniature plastic bricks





Demo: Custom Theme

- [Preview Start](#)
- [Custom Theme App](#)
- [Demo Steps](#)



Theming Recap

- Use Sass & the theme utility to your advantage
- Theme structure
 - Color
 - Size
 - Typography
- Use the core variables and override their values

Part II: Customizing widget views



Widget = View + ViewModel

Widget = View + ViewModel

Presentation is separate from business logic

- Reusable
- UI replacement
- Framework integration

Views

Views

- Presentation of the Widget
- Uses ViewModel APIs to render the UI
- View-specific logic resides here
- Extends `esri/widgets/Widget`

Widget (Base) Class

`esri/widgets/Widget`

Widget (Base) Class

`esri/widgets/Widget`

- Provides lifecycle
- API consistency

Widget Lifecycle

Widget Lifecycle

- `constructor()`
- `postInitialize()`
- `render()`
- `destroy()`

render ()

render ()

- Defines UI
- JSX
- Reacts to renderable properties (private or public)
- Virtual DOM

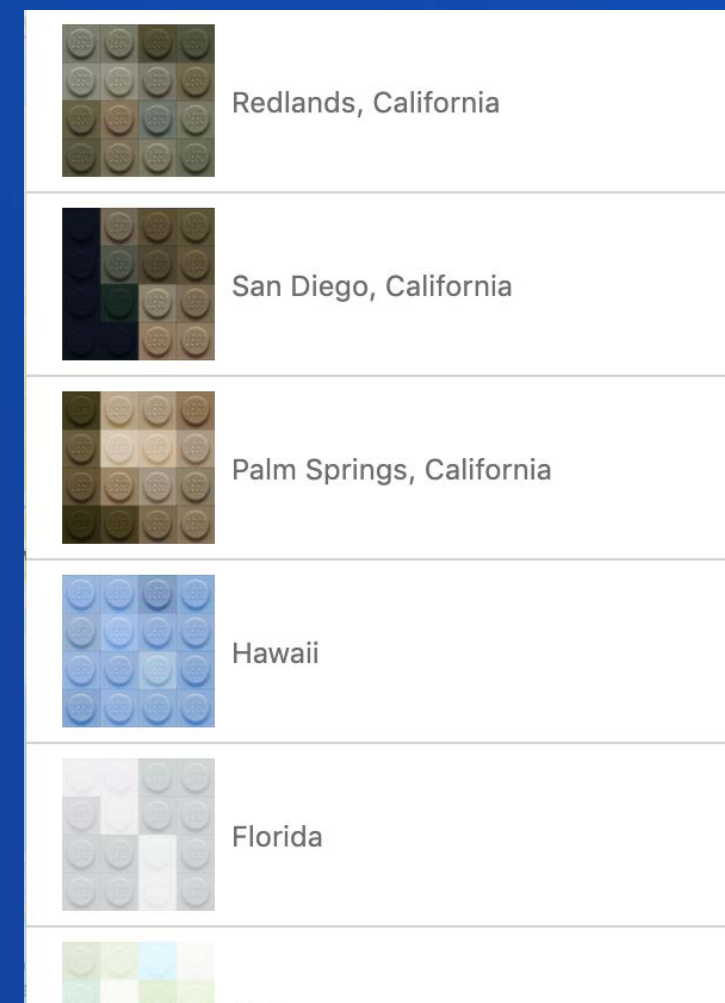
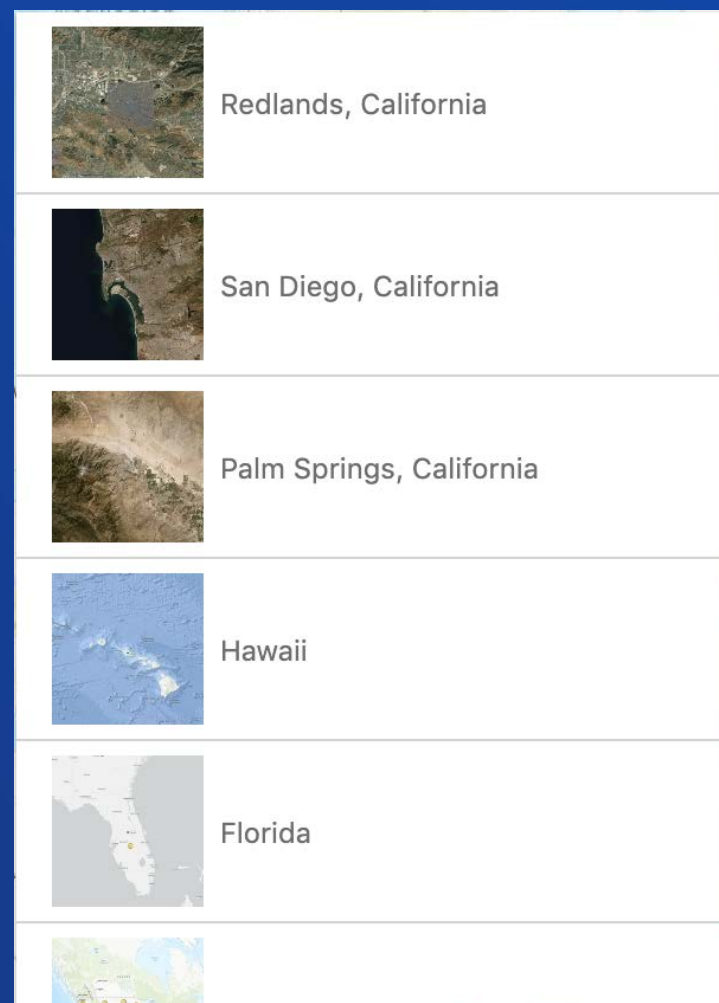
Working with Views

API Exploration

- Bookmarks Doc
- Bookmarks Sample

Customizing a widget view

Brickified™ Bookmarks widget



Demo: Customizing a widget view

- Demo Start
- Demo Steps



Customizing a widget view recap

Customizing a widget view recap

- Widget = View + ViewModel
 - Reusable
 - UI replacement
 - Framework integration

Customizing a widget view recap

- Widget = View + ViewModel
 - Reusable
 - UI replacement
 - Framework integration
- Extended existing widget
 - Lifecycle
 - Custom rendering (overrides)

Conclusion

- Themed by changing colors, sizing, etc.
- Altered presentation (custom UI)

Recommended Sessions

- [ArcGIS API for JavaScript: The Road Ahead](#)
- [Building Web Apps with the ArcGIS API for JavaScript](#)

Additional Resources

- Implementing Accessor
- Setting up TypeScript
- Widget Development
- JS API SDK

Share your apps and suggestions with US

- Cool apps
- API feedback
- Ideas for the next UC

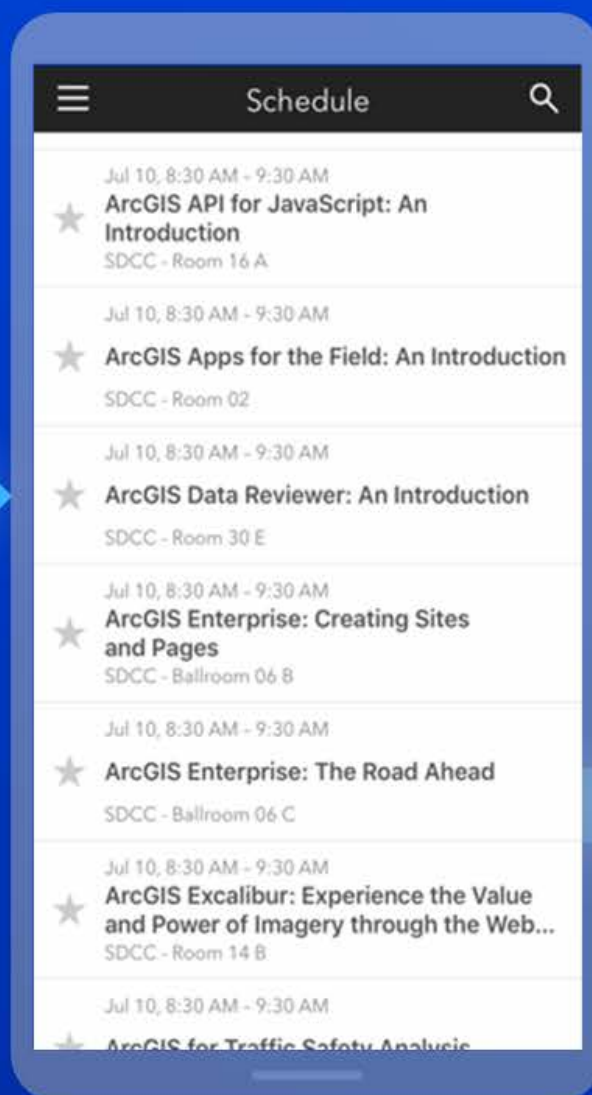
jsapi_pm@esri.com

Please Share Your Feedback in the App

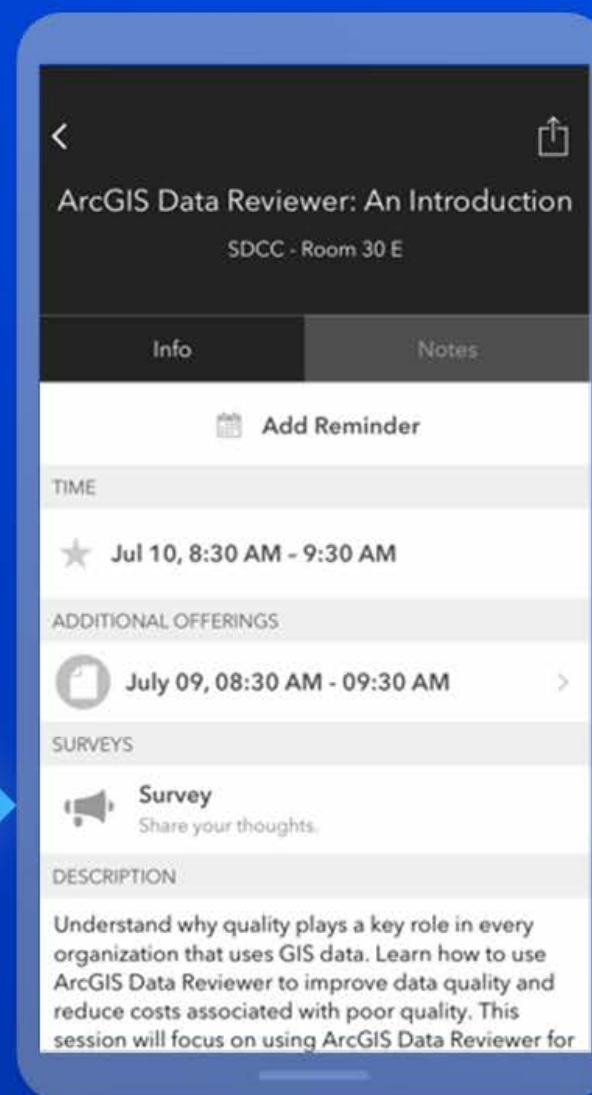
Download the Esri Events app and find your event



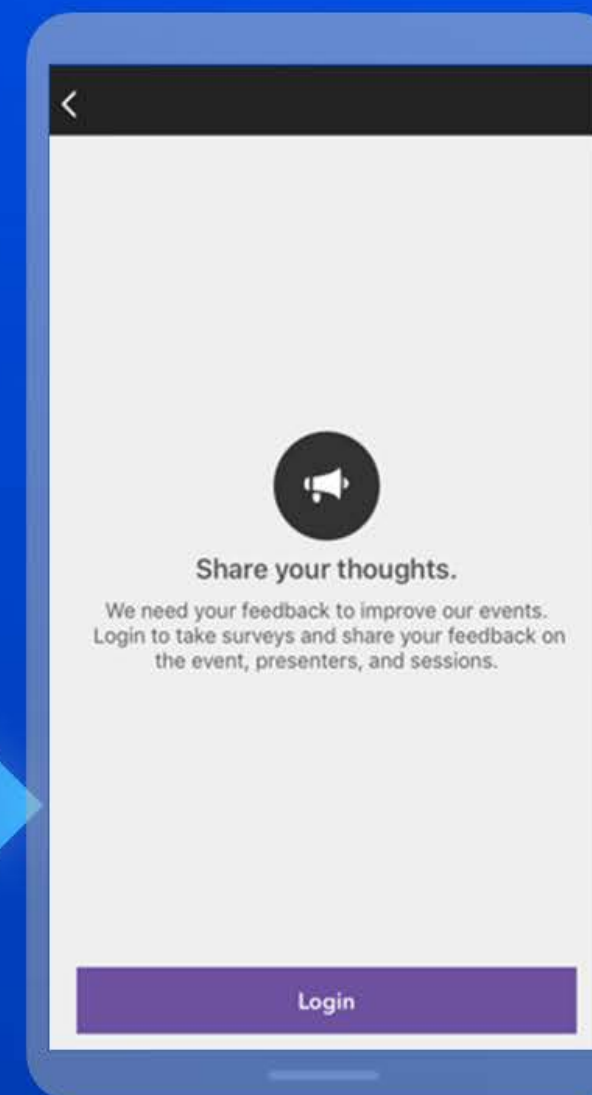
Select the session you attended



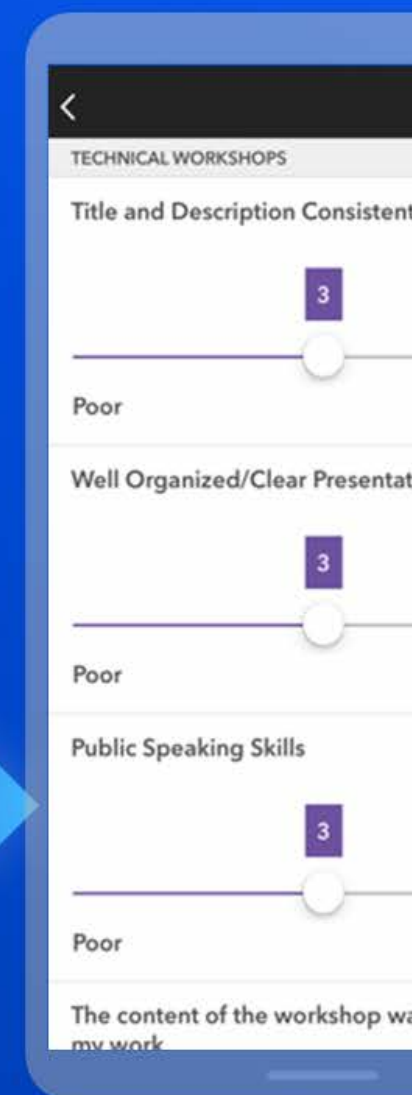
Scroll down to "Survey"



Log in to access the survey



Complete the survey and select "Submit"



Questions?

For example

🤔 Where can I find the slides/source?

👉 esriurl.com/customwidgetsuc2019 👈

Thank You!

