

# ArcGIS Maps SDK for JavaScript: Improving UX with Popups

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2023 ESRI USER CONFERENCE



# Agenda

- What are popups?
- Popup Elements
- Arcade
- Configuring popups in the Map Viewer
- Improving popups with the JS Maps SDK

# Presentation Resources

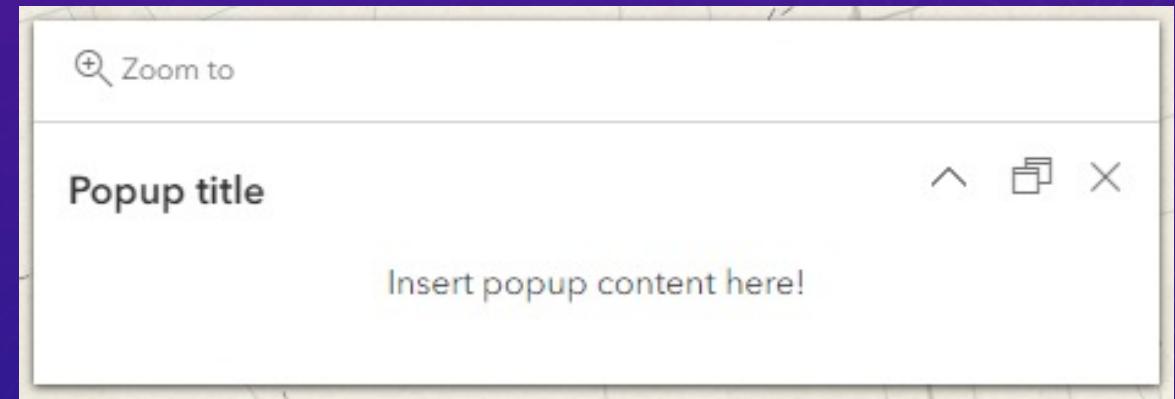
<https://links.esri.com/UC2023/improving-ux-popups>



# Popups

What are they?

- Customizable
- Interactive
- Cross-platform feature
- Available for a variety of layer types



# Popup Elements

- Text
- Fields list
- Attachments
- Media (Charts and Images)
- Arcade
- Related records

The image displays four distinct popup elements, each with a header, footer, and central content area. They are arranged vertically.

- Top Left (Earthquake Alert):** A 2 of 2 page indicator. Header: "Get directions" and "Zoom to". Content: "1.5 Magnitude Earthquake", "-0.20 km depth", "6/30/2023, 11:59 AM", "9km SSW of Escondido, CA, USA (33.04, -117.10)". Sub-sections: "USGS PAGER ALERT: No PAGER Issued" and "TSUNAMI WARNING: No Alert Issued".
- Top Right (State Info):** A 2 of 3 page indicator. Header: "Get directions" and "Zoom to". Content: "US States and Territories: Arkansas". Table:

Name	Arkansas
Source of Geography Code	USS
Universal Geography Code	AR
- Middle Left (Oregon Data):** A 2 of 3 page indicator. Header: "Get directions" and "Zoom to". Content: "Oregon". A line chart showing the "Unemployment rate for the most recent 14 months of BLS data" with values ranging from 0 to 6. Below the chart: "Unemployment rate for the most recent 14 months of BLS data" and "1 of 4".
- Middle Right (AED Location):** A 2 of 3 page indicator. Header: "Edit", "Get directions", and "Zoom to". Content: "AED Location: York". A file icon labeled "AED\_Instructions.txt".
- Bottom Right (Bird Species Observations):** A 2 of 3 page indicator. Header: "Edit", "Get directions", and "Zoom to". Content: "Bird species observations: Canada Goose". Text: "Below are the two most recent behavior comments relating to Canada Goose observation. Click 'Show all' to see all relating comments." Sub-section: "Canada Goose behavior comments" dated "July 20, 2022".

# Arcade

What is it?

- ArcGIS's cross-platform expression language
- Create expressions to calculate new values on the fly
  - Use values
  - Use geometries
- Use FeatureSets to access data from other layers hosted in ArcGIS Online



# Arcade

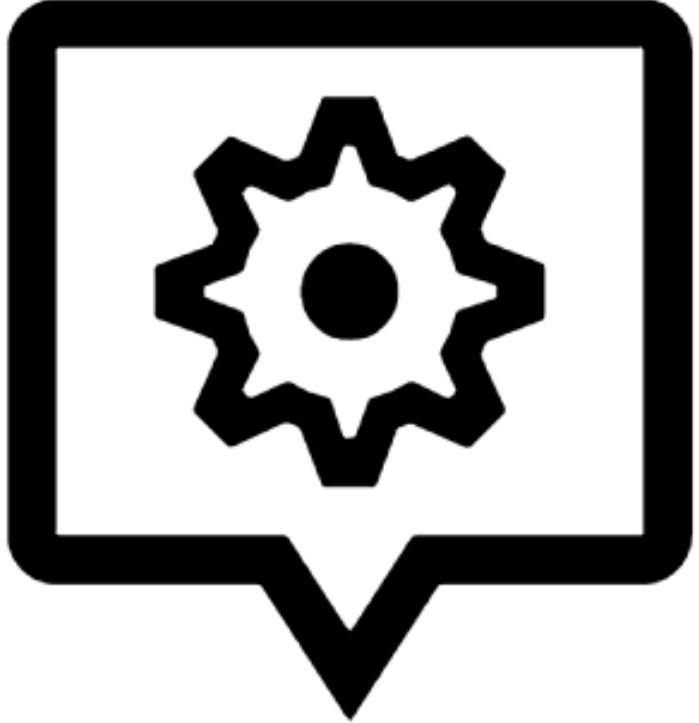
Use in pop-ups

- Attribute expressions
- Arcade elements

The screenshot shows the ArcGIS Arcade editor interface. On the left, the 'Run' tab displays the following JavaScript code:

```
1  /*
2  Open the Suggestions tab and choose a template to get started creating different content types for your popups.
3  To learn more about using Arcade to create pop-up content visit:
4  https://developers.arcgis.com/arcade/guide/profiles/#popup-element
5 */
6
7 return {
8   type : 'text',
9   text : 'place your text or html here' //this property supports html tags
10 }
```

On the right, a sidebar titled 'Suggestions' is open, showing a search bar and a list of templates: 'Chart', 'Fields list', and 'Rich text'. There are also links for 'Profile variables', 'Functions', 'Suggestions', and 'Help'.



# MapViewer Popups

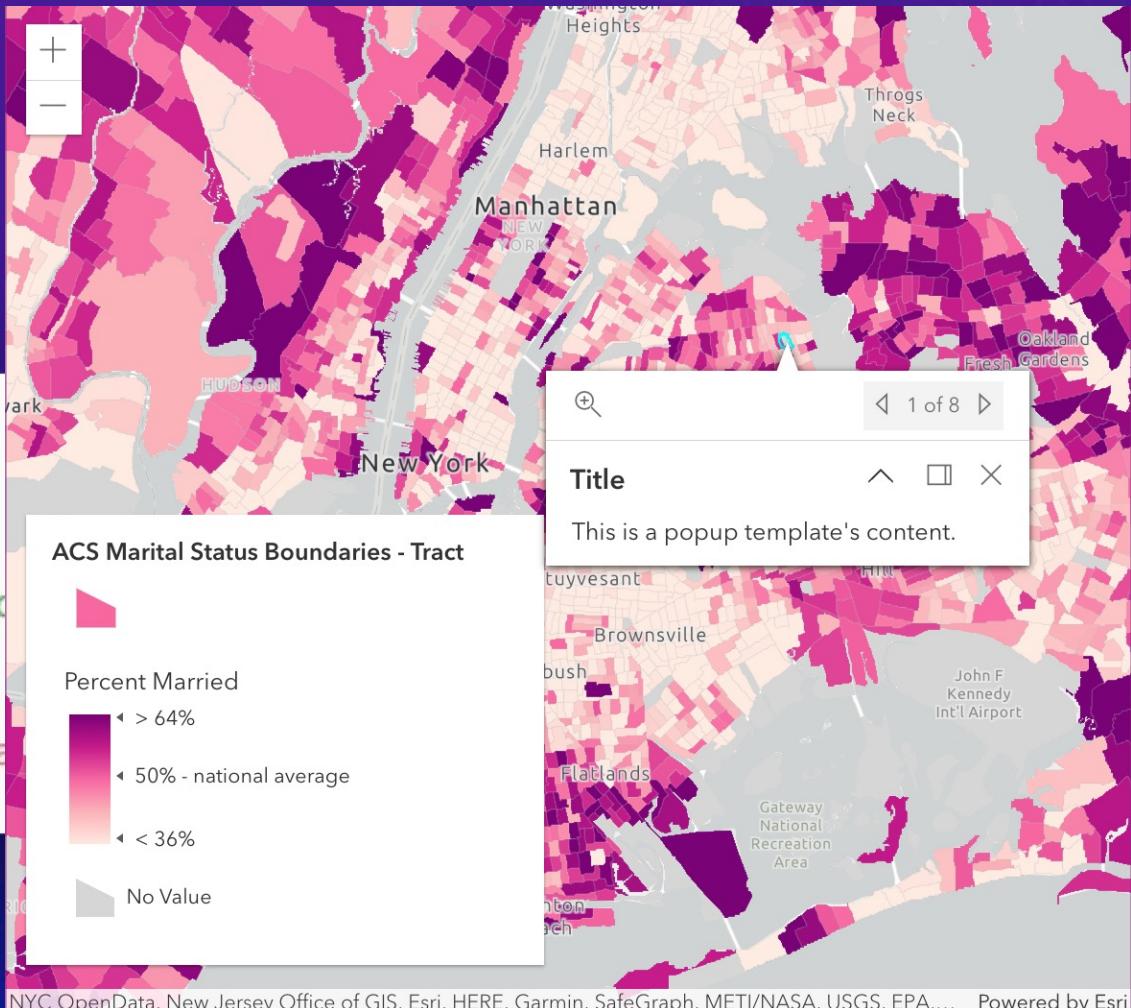
# Popups & the JS Maps SDK



# PopupTemplate

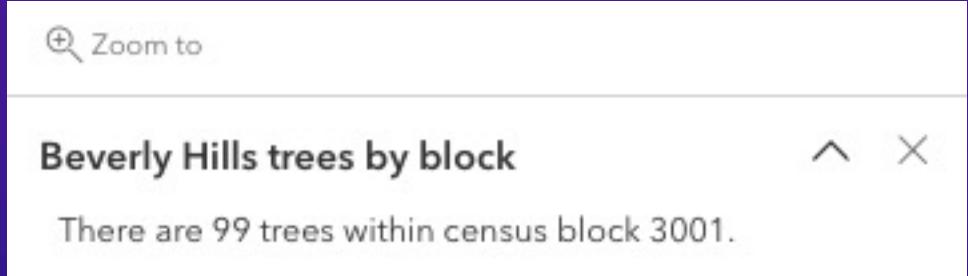
- Formats and defines the popup content
- Set defaultPopupTemplateEnabled

```
1 const popupTemplate = {  
2   // autocasts as new PopupTemplate()  
3   title: "Title",  
4   content: "This is a popup template's content."  
5 };  
6  
7 featureLayer.popupTemplate = popupTemplate;
```



# Content

## Text Elements



```
1 // Create the TextContent element
2 let textElement = new TextContent({
3   // Set the text value to reference fields
4   text: "There are {Point_Count} trees within census block {BLOCKCE10}"
5 });
```

# Content

## Field Element

Sum of species tree count	35
Count of Points	35
Common Name	NEW ZEALAND CHRISTMAS TREE
Block	3029

```
1 // Create the FieldsContent element
2 let fieldsElement = new FieldsContent({
3   fieldInfos: [
4     {
5       fieldName: "relationships/0/Point_Count_COMMON",
6       visible: true,
7       label: "Sum of species tree count",
8       format: {
9         places: 0,
10        digitSeparator: true
11      },
12      statisticType: "sum"
13    },
14    {
15      fieldName: "Point_Count",
16      visible: true,
17      label: "Count of Points",
18      format: {
19        places: 0,
20        digitSeparator: true
21      }
22    },
23    {
24      fieldName: "relationships/0/COMMON",
25      visible: true,
26      label: "Common Name"
27    },
28    {
29      fieldName: "BLOCKCE10",
30      visible: true,
31      label: "Block"
32    }
33  ]);
34});
```

# FieldInfo

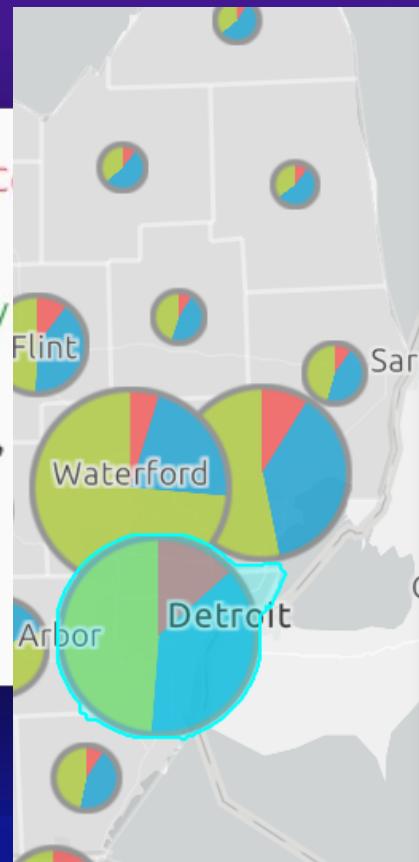
- Defines how fields participate in popup
- Set on either:
  - PopupTemplate
  - Individual FieldContent

```
1 // Format and set values for field
2 let fieldInfo = new FieldInfo({
3   fieldName: 'PROMINENCE_ft',
4   label: 'Prominence (feet)',
5   isEditable: true,
6   visible: false,
7   //autocasts to FieldInfo.Format
8   format: {
9     places: 0,
10    digitSeparator: true
11  }
12 });
13
14 // Set on popupTemplate - suggested way
15 popupTemplate.fieldInfos = [fieldInfo];
16
17 // or set on FieldContent itself
18 fieldContent.fieldInfos = [fieldInfo];
19 popupTemplate.content = [fieldContent];
```

# Content

## Media Elements

```
1 let mediaContent = new MediaContent();
2   mediaInfos: [
3     {
4       title: '{COUNTY} County',
5       type: 'pie-chart',
6       value: {
7         fields: ['SOMEHS_CY'],
8       },
9     },
10   ],
11 );
```



Wayne, MI

Wayne County Education Attainment



College educated: 48.75%  
(397,990)

< 1 of 3 >

# Content

## Arcade Elements

- Must return a dictionary representing a popup element:
  - TextContent
  - FieldsContent
  - MediaContent

```
1 // Creates a column chart using Arcade
2 layer.popupTemplate = {
3   title: "Educational Attainment",
4   content: [
5     type: "expression",
6     expressionInfo: {
7       expression:
8         // Arcade expression that returns a popup element
9       ...
10      return{
11        type: "media",
12        attributes,
13        title: "Chart title",
14        mediaInfos: [...]
15      }
16    },
17    title: "Educational Attainment"
18  }
19 }]
20 };
```

# Content

## Attachment Elements

```
1 let attachmentContent = new AttachmentsContent({  
2   displayType: "preview",  
3   title: "{StaduimName}",  
4   description: "{StadiumName} was played on in  
      {Year} and resides is {City}, {Country}."  
5 });
```

Zoom to Selected Stadium Full Extent ▲ ⌂ × 2 of 2

Rose Bowl (1994)

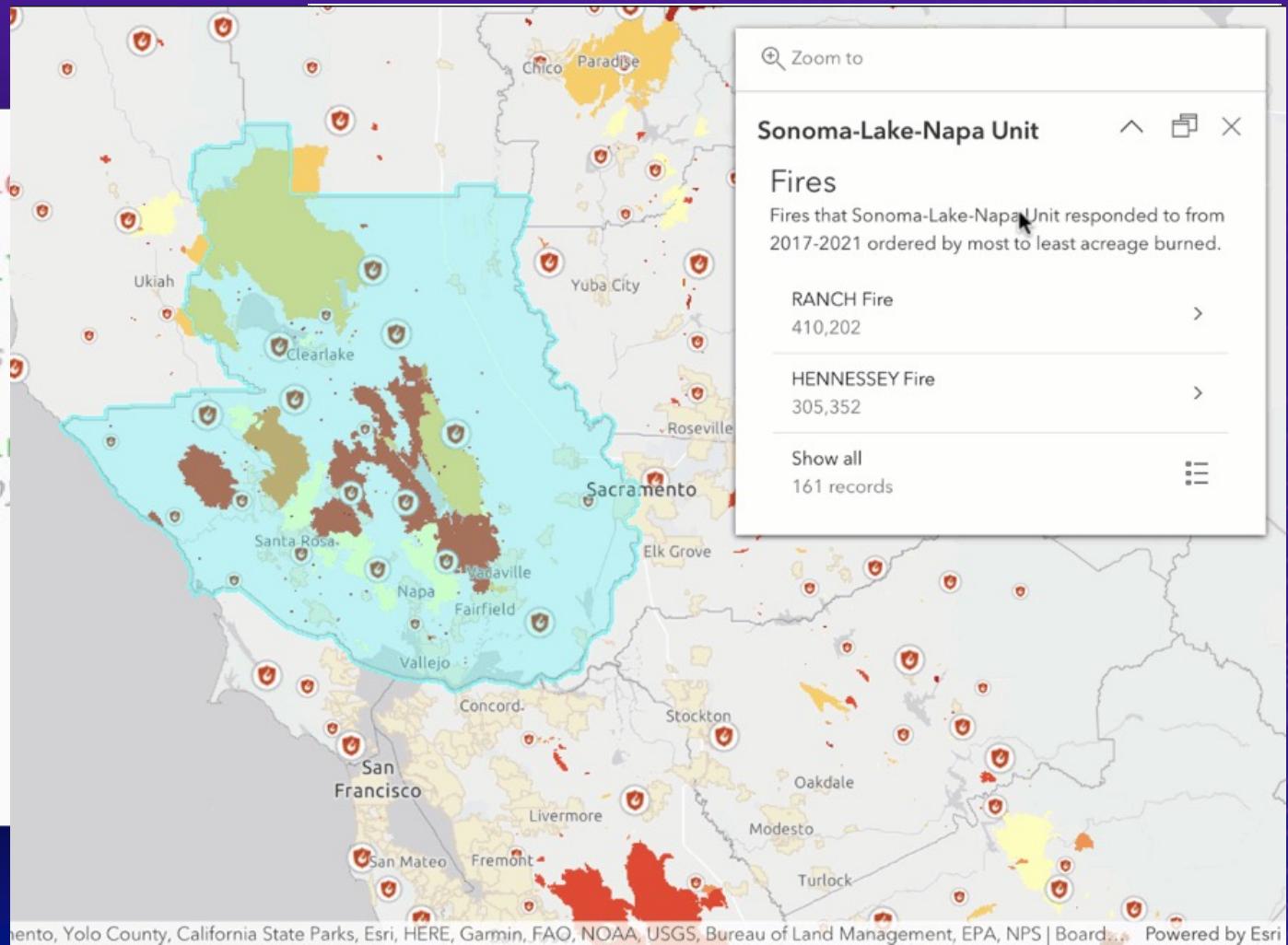
Rose Bowl was played on in 1994 and resides is Pasadena, United States.



# Content

## Relationship Elements

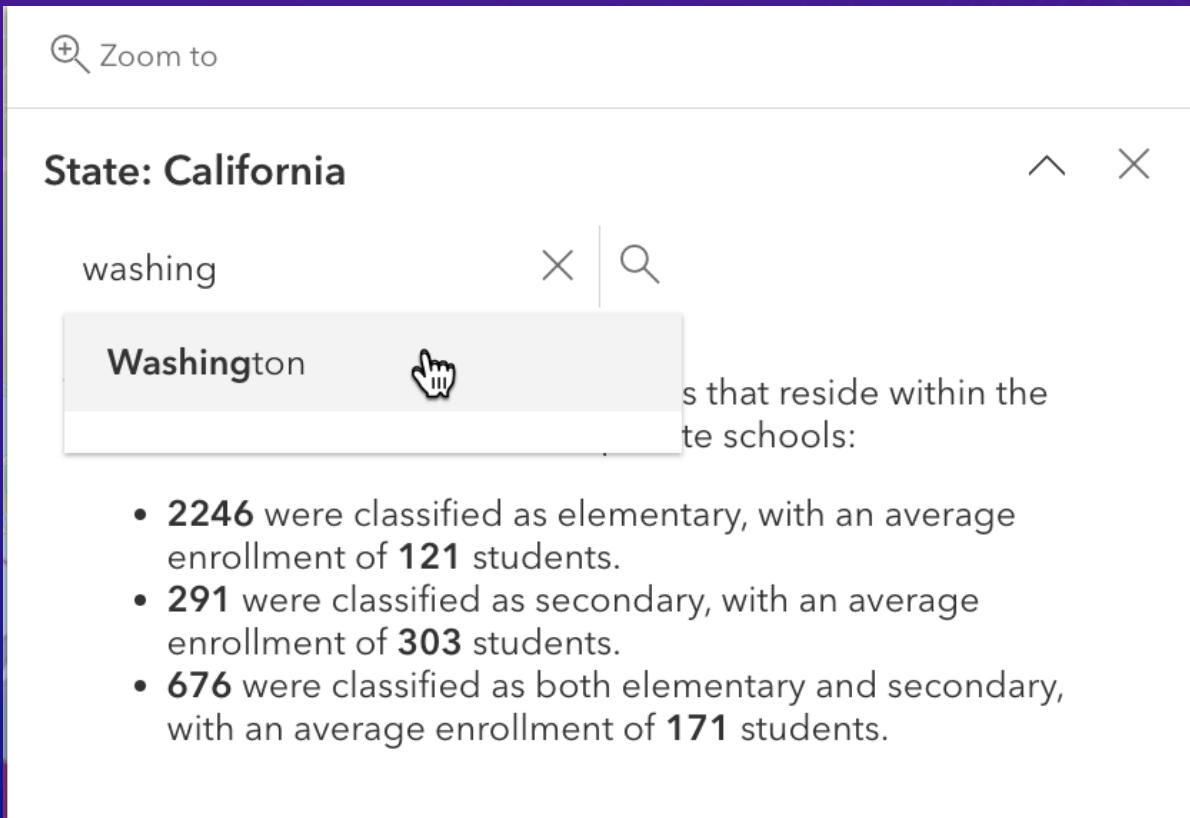
```
1 let relationshipContent = new RelationshipContent();
2   relationshipId: 1,
3   description:"All facilities for wildland fire protection that reside in {UNIT}.",
4   // Display only two related cities
5   displayCount: 2,
6   title: "Facilities for Wildland Fire Protection"
7   // Order list of related records by
8   // field in ascending order.
9   orderByFields: {
10     field: "NAME",
11     order: "asc"
12   }
13});
```



# Content

## JS Maps SDK Specific

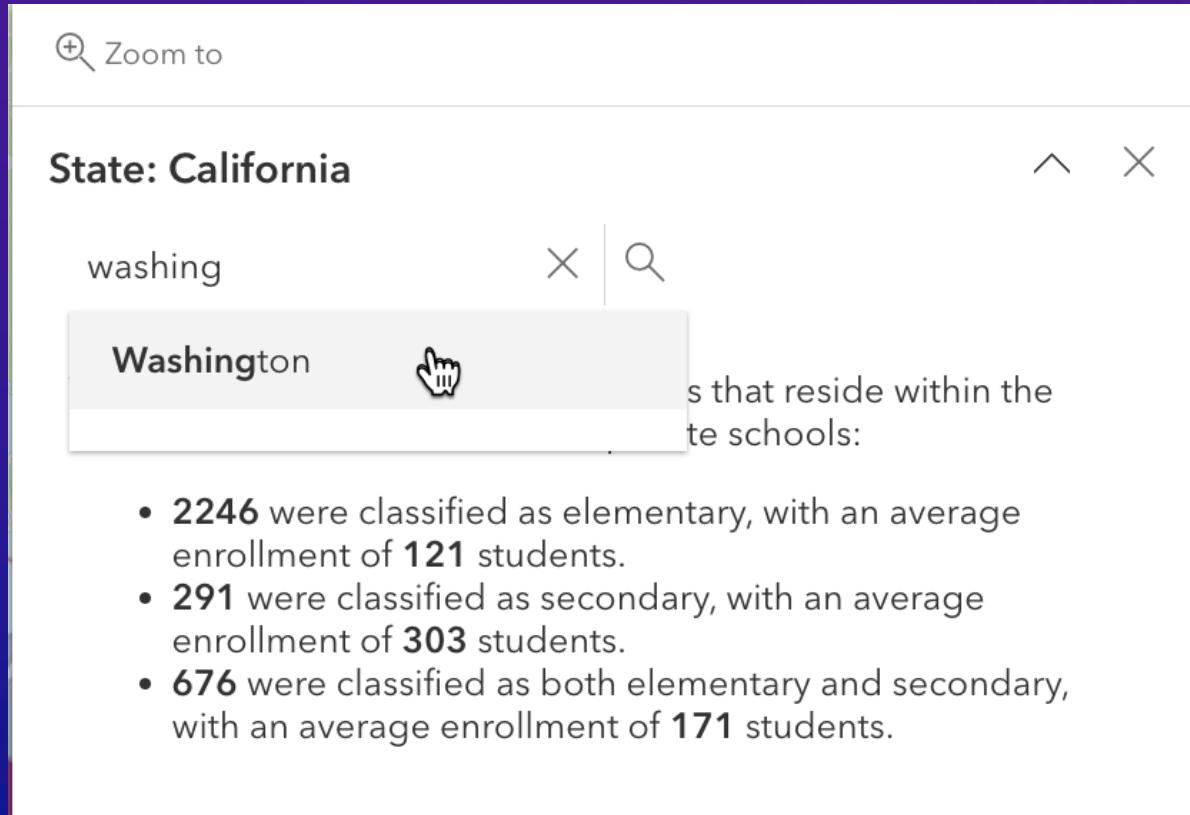
- CustomContent:
  - Display a Widget



# Content

## JS Maps SDK Specific

- CustomContent:
  - Display a Widget
- Promise
  - Useful when calling method/executing query and want to display results



# Content

## JS Maps SDK Specific

- CustomContent:
  - Display a Widget
- Promise
  - Useful when calling method/executing query and want to display results
- Function
  - Popup may require additional processing

```
1 function formatContent(feature) {
2     // Check if the access type is open or unrestricted and set
3     // the color to green. Otherwise, set the color to red.
4     let color =
5         feature.graphic.attributes.ACCESS === "Open" || "Unrestricted"
6             ? "green"
7             : "red";
8
9     let textContent = new TextContent();
10    // Create the text content and set the text depending on which layer
11    // the feature is from and return in an array.
12    if (feature.graphic.layer.title == "Campsites") {
13        textContent.text =
14            `<b>{LABEL}</b> resides along {TRAIL}. This site is currently <span style='color: ` +
15            color + `';'>{ACCESS}</span>`;
16    } else {
17        textContent.text =
18            `'{TRAILNAME} is a <b>{MTFCC}</b> and currently <span style='color: ` +
19            color + `';'>{ACCESS}</span>.`;
20    }
21    return [textContent];
22}
```

# Docking

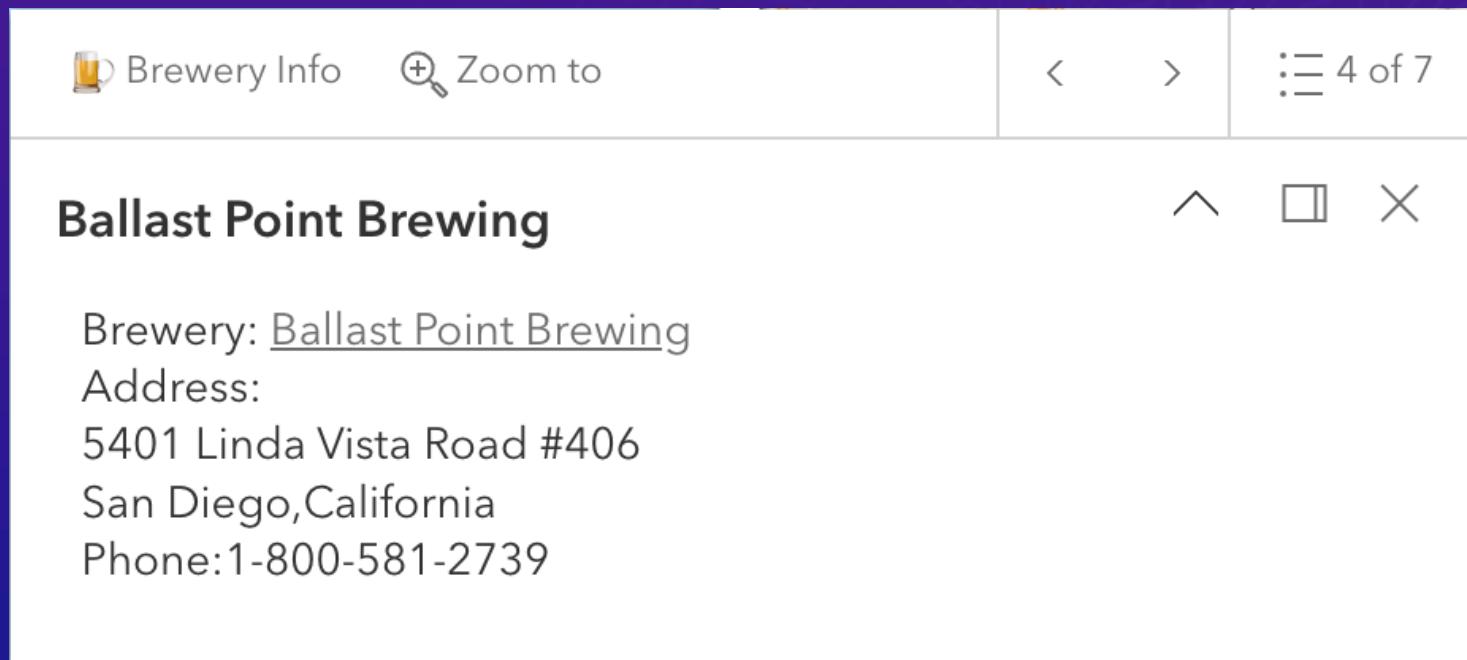
JS Maps SDK Specific

```
1 view.popup = {  
2   dockEnabled: true,  
3   dockOptions: {  
4     // Sets which position to place the popup in the view  
5     position: "top-left",  
6     // Disables the dock button from the popup  
7     buttonEnabled: false,  
8     // Ignore the default sizes that trigger responsive docking  
9     breakpoint: true  
10    }  
11};
```

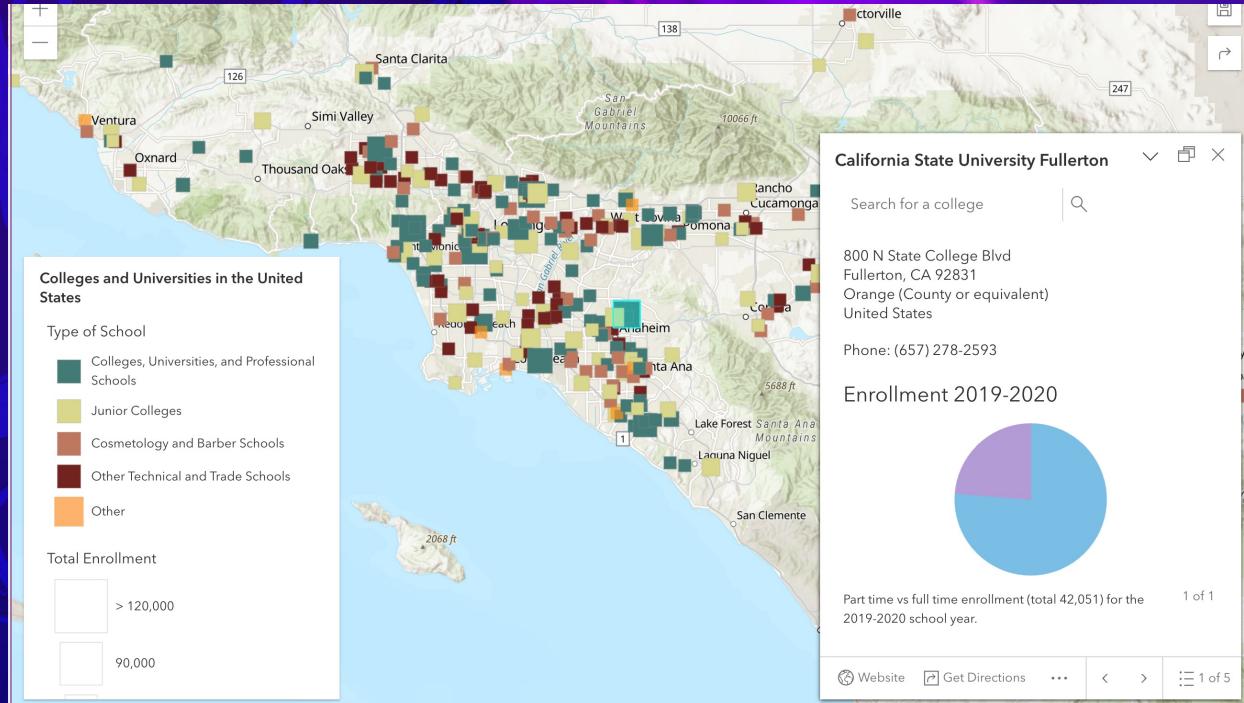
# Actions

JS Maps SDK Specific

- Default actions
  - Zoom to
- Custom Actions
  - Styled with Calcite icons,  
images, or class



# Configuring Popups



# Upcoming Sessions

Session	Day/Time	Location
An Introduction to JavaScript for Future Web Developers	Tuesday, 1:00PM – 1:45PM	Expo Demo Theater 2
Web Editing: What's New and The Road Ahead	Wednesday, 8:30AM – 9:30AM Friday, 9:00AM – 10:00AM	Room 8 (Wednesday) Room 1 AB (Friday)
Web Development Strategies	Wednesday, 1:00PM – 2:00PM	Room 7 AB
ArcGIS Maps SDK for JavaScript: An Introduction	Wednesday, 4:00PM - 5:00PM	Room 7 AB
ArcGIS Maps SDK for JavaScript: Programming Patterns and API Fundamentals	Thursday, 8:30AM – 9:30AM	Room 14 B
ArcGIS Maps SDK for JavaScript: Data Visualization	Thursday, 10:00AM – 11:00AM	Room 2
ArcGIS Maps SDK for JavaScript: Building 3D Web Apps	Thursday, 11:30AM – 12:15PM	Expo Demo Theater 13
Building Web Apps with Calcite Design System	Thursday, 1:00PM – 2:00PM	Room 14 B
ArcGIS Maps SDK for JavaScript: What's New and the Road Ahead	Thursday, 2:30PM – 3:30PM	Room 1 AB

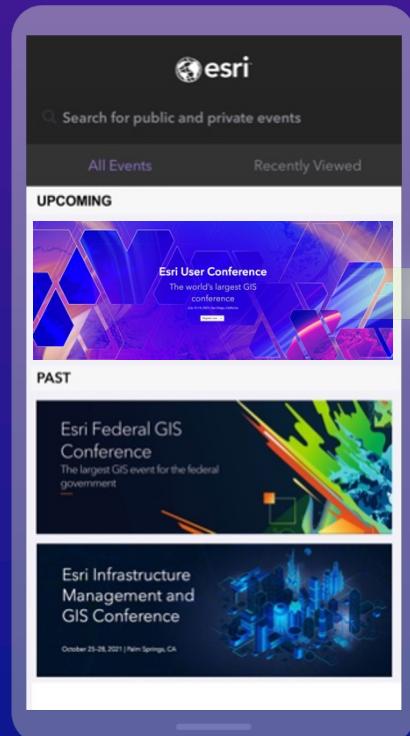
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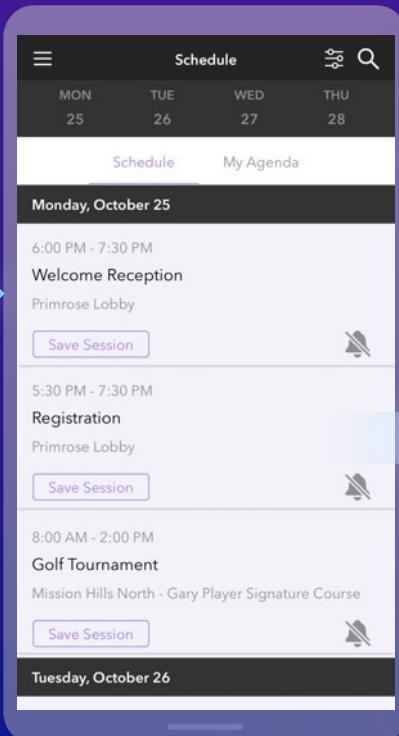


# Please Share Your Feedback in the App

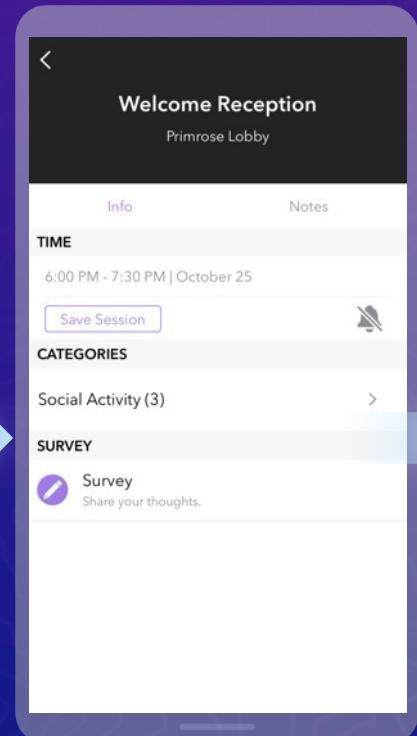
Download the Esri Events app and find your event



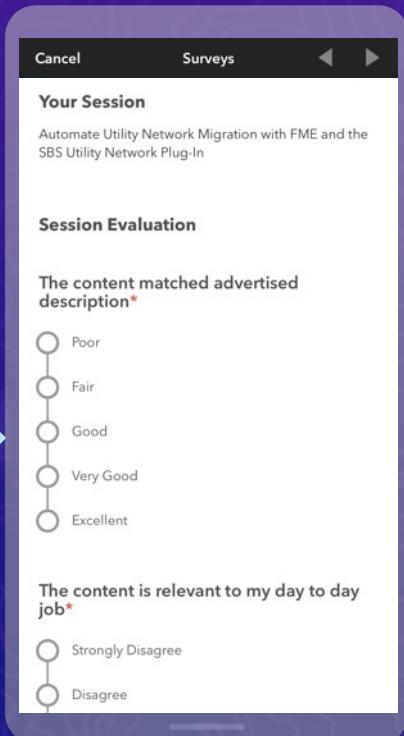
Select the session you attended



Scroll down to "Survey"



Log in to access the survey





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