



```
.then((layerView) => console.log(layerView))
// If there were problems with the layerView, you'll get an error here
.catch(console.error);
```

```
map.alllayers
  .forEach((layer) =>
    layerView(layer)
      .then((layerView) => console.log(layerView))
      // If there were problems with the layerView, you'll get an error here
      .catch(console.error);
```

ESRI DEVELOPER SUMMIT 2023

ArcGIS Experience Builder for Developers

Mark Torrey, Gavin Rehkemper, and Kevin Gonzago

Workshop Agenda

Day 1

- Morning
 - Introduction to ArcGIS Experience Builder
 - Install Experience Builder Developer Edition + Activity
 - Break – 10 minutes
 - Introduction to Data Sources
 - Widget Communication + Activity
- Lunch – 60 minutes
- Afternoon
 - Best Practices for Layouts, Themes and Mobile Optimization + Activity
 - Modernize your WAB app
 - Break – 10 minutes
 - Create an ExB App Based on a Use Case – Show and Tell Activity
 - Q&A

Quick Introductions

- Introduce yourself
- Your knowledge of configuration and customization of Experience Builder
- Tell us one fun thing about yourself

Introduction to ArcGIS Experience Builder

Kevin Gonzago

```
const layer = view.map.allLayers.get(0);
view.whenLayerView(layer)
  .then(layerView => console.log(
    // If there were problems with the layer
    // catch(console.error);
```

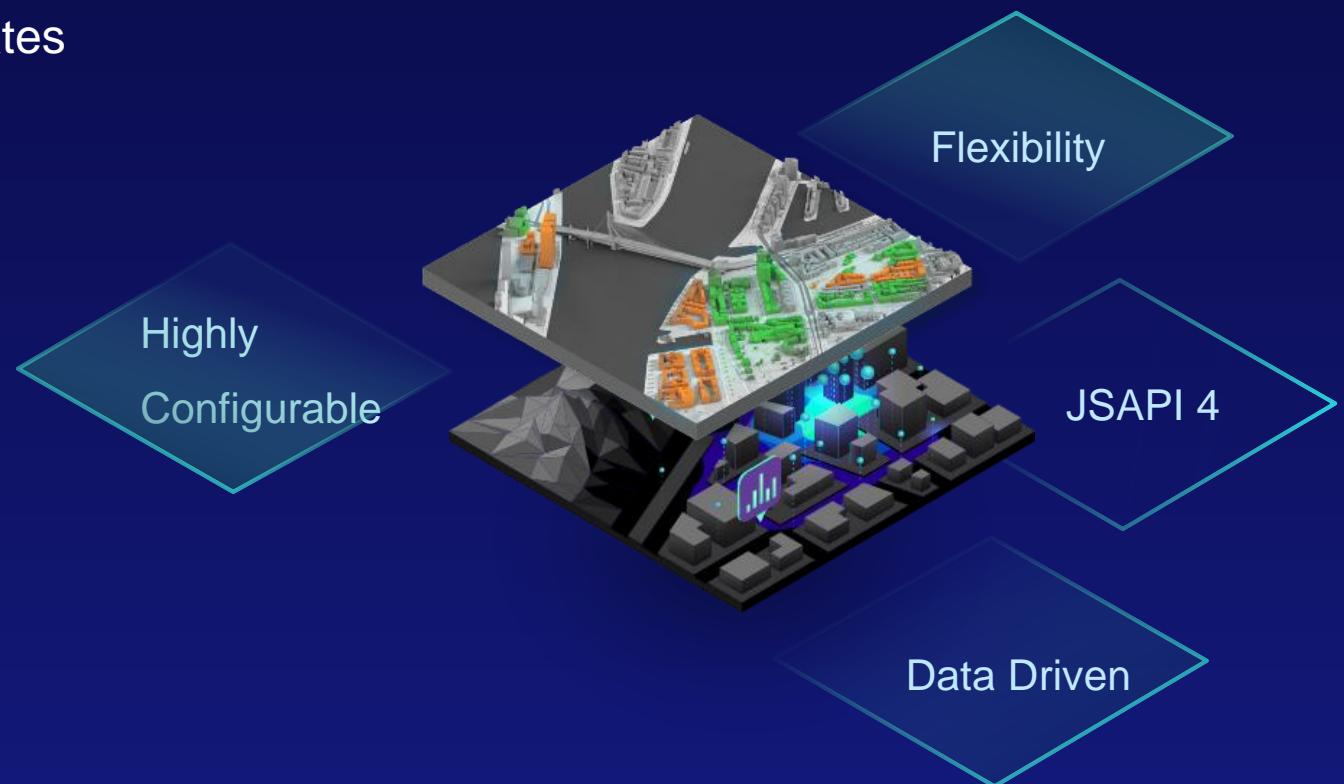
```
const view = new ExperienceBuilderView({
  container: "view",
  map: map,
  scene: scene,
  mapConfig: mapConfig,
  mapContainer: "map",
  sceneContainer: "scene"
});
```



What is Experience Builder?

Create the app you want

- Build web apps and pages
 - Explore **design** decisions with templates
 - Access ready-to-use **widgets**
 - Build custom tools
- Data driven
- Modern interface





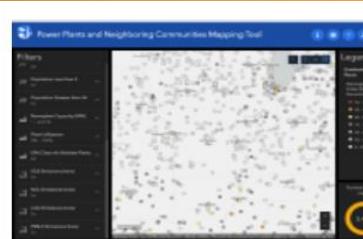
Southeast AK Herring Surveys 2021

ADF&G Commercial Fisheries
Southeast AK - Region 1 herring survey data collected using Esri Field Maps app are shown in these interactive maps.



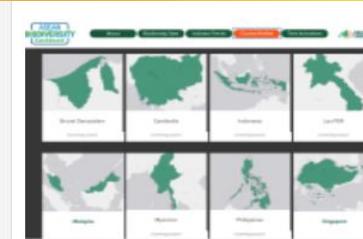
Is My River Fit to Play in?

The Rivers Trust has released this interactive map which aims to help shed the light on the reality of sewage pollution and allow river users to weigh up the risks before taking to the water.



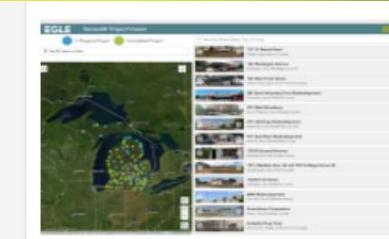
Power Plants and Neighboring Communities Mapping Tool

The map identifies the locations of power plants and highlights the key demographics of people living within three miles of those plants.



ASEAN Biodiversity Dashboard

The ASEAN Centre for Biodiversity and NatureServe created the ASEAN Biodiversity Dashboard to provide access to an interactive, online platform for visualizing trends and geographic variation in biodiversity indicators.



RenewMI Project Viewer

This project viewer contains past and present projects from the Remediation and Redevelopment Division (RRD). These are state-funded environmental remediation projects, as well as a few non-state funded remediation sites of interest.



Kansas Situation Report

The Kansas Situation Report brings together data from Emergency Management, Weather and Mapping organizations to provide the most up-to-date and accurate information possible in support of emergency response, situational awareness and preparedness across the State of Kansas.



Heinz Field Explorer

Built by Houseal Lavigne Associates, LLC., this app explores seating and beer distribution at Heinz Field in Pittsburgh, PA.



Empowering Photogrammetry with SURE Software

SURE software, along with ArcGIS, enables users to seamlessly capture, process, and analyze high-quality 3D data from imagery and LiDAR data.



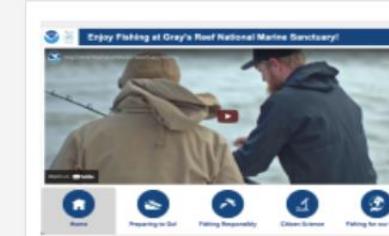
Mars2020 Perseverance Rover

This web app tracks the progress of Perseverance Rover and Ingenuity Helicopter on the surface of Mars in both space and time.



Ohio Sentry Hazard Awareness

Hazard awareness maps for the watch office, including current and severe weather outlook, flooding potential, hurricane tracker, drought, earthquakes and wildfires.



Gray's Reef National Marine Sanctuary

Help conserve the incredible marine resources of Gray's Reef National Marine Sanctuary with this virtual fishing guide.



PhotoMappers Public Portal

NAPSG Foundation hosts a volunteer-powered platform for quickly finding, mapping, and sharing the location of disaster photos found in news stories and social media platforms.

ArcGIS Experience Builder Key Features

- Mobile optimization
- Flexible Design
- 2D and 3D in one app
- Widget Interconnection
- Integration with other ArcGIS apps
- Extensibility



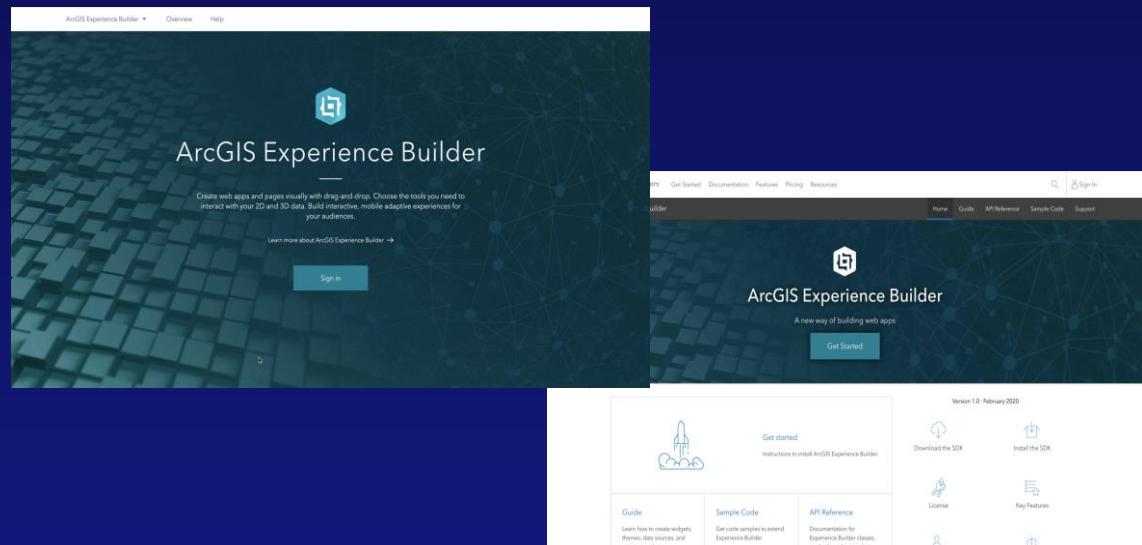
Types of Web Experiences

- 3D
- Apps
- Surveys
- Gallery
- Web Pages
- Mobile
- Portal



ArcGIS Experience Builder Editions

- Online and Enterprise Editions
 - ArcGIS Online URL: <https://experience.arcgis.com/>
 - ArcGIS Enterprise 10.8.1 and up
- Developer Edition
 - Download and install locally



ArcGIS Experience Builder Licensing



- Essential Apps Bundle
 - Must have a Creator or GIS Professional user type to create experiences
- ArcGIS Developer subscription
 - For developers who are not part of an ArcGIS organization to use Developer Edition

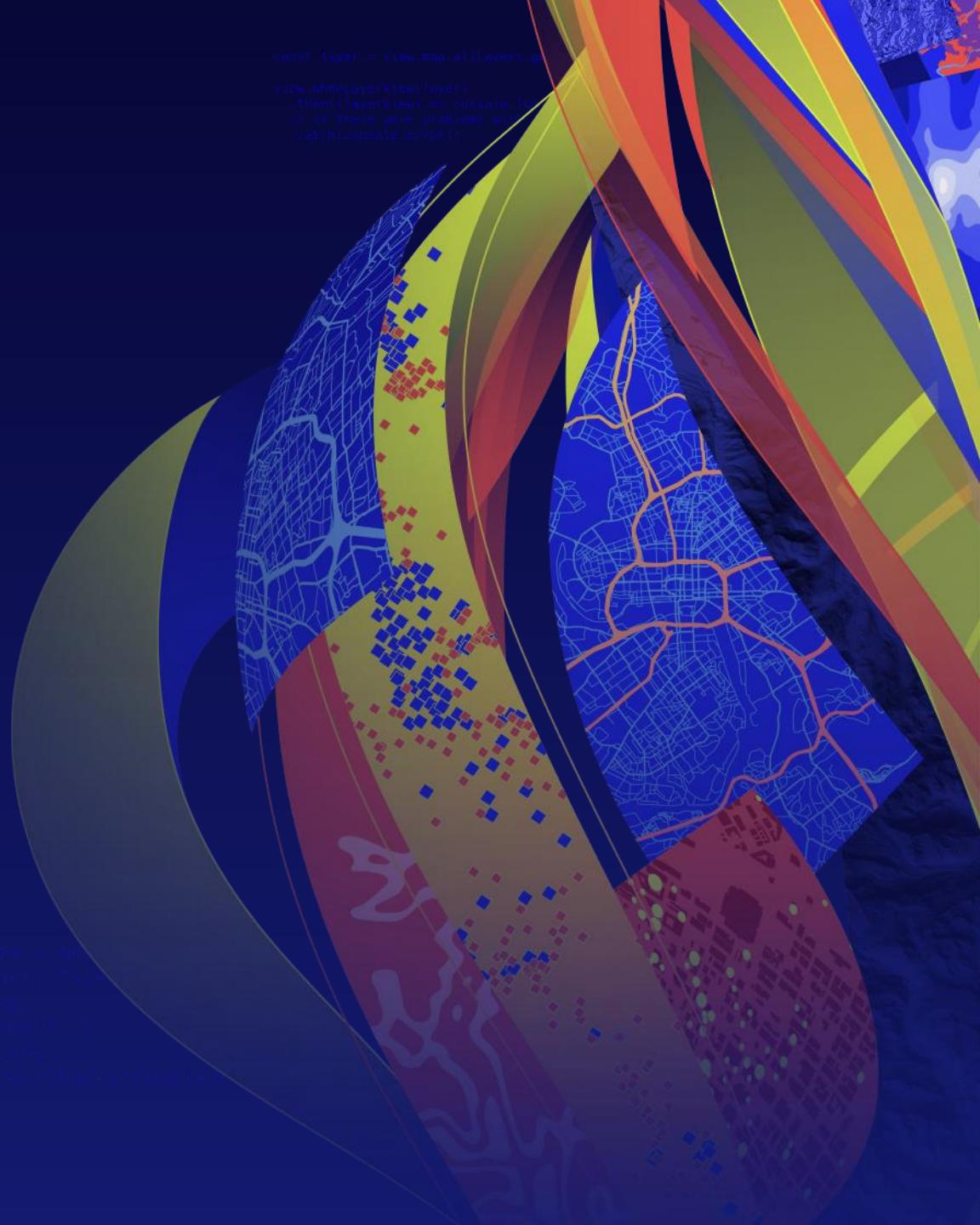
Building Blocks



- Design and configure a web experience in builder mode
- Builder consists of these core components:
 - Templates
 - Widgets
 - DataSources
 - Themes
 - Extensibility

Templates

Building Block

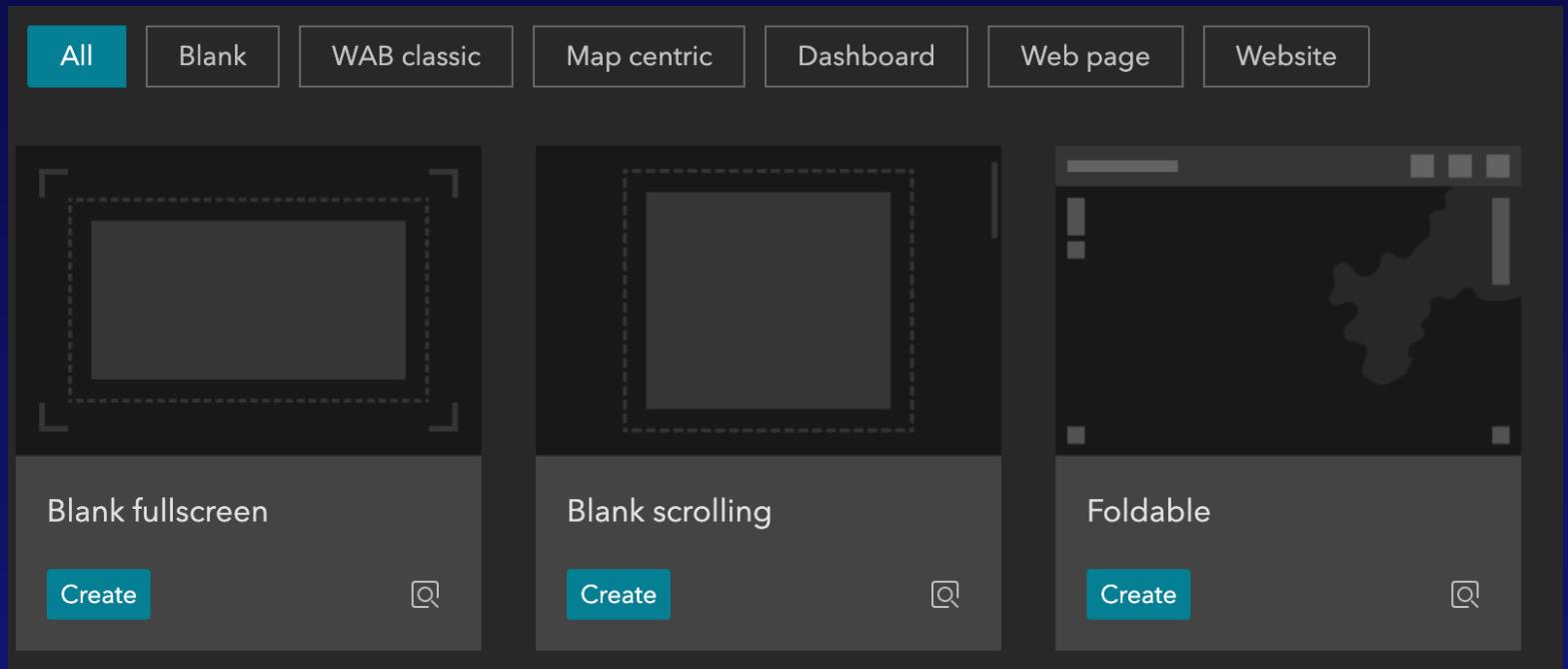


```
const layer = view.map.allLayers.get();
view.whenLayerViewed(layer)
    .then(layerView => console.log(
        // If there were problems with
        // catching errors:
```

```
const view = new MapView();
view.createMap();
const map = view.map;
map.on('load', () => {
    map.addLayer(layer);
});
```

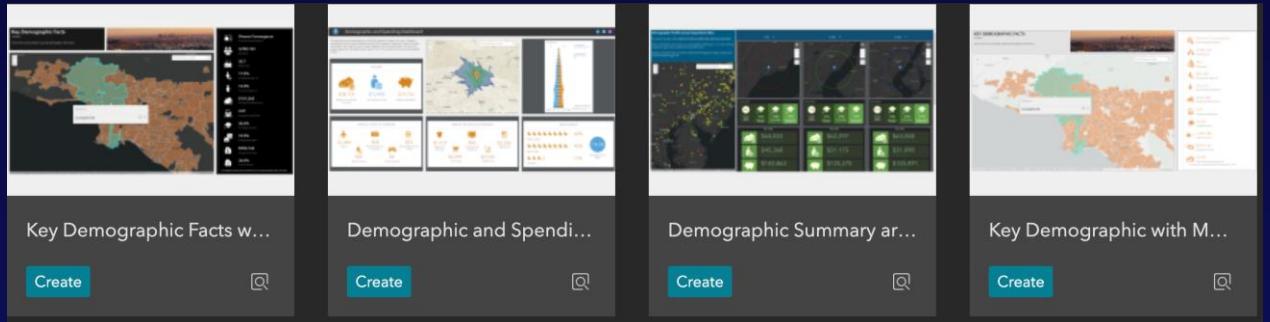
Default Templates

- Fullscreen
- Scrolling
- Part of the product



Public Templates

Available in ArcGIS Online



A screenshot of the ArcGIS Online interface, specifically the 'ArcGIS Online' tab. It displays a grid of 12 public template cards. Each card includes a preview image, a title, a 'Create' button, and a magnifying glass icon. The titles of the templates are: County Schools Editor, Hotel Booking, City News, Place Explorer, Art Photography Museum, A Glimpse of the Continents, Topic Report, Map View, Public Info, and City Explorer.

Business Analyst Templates

Showcase New Features

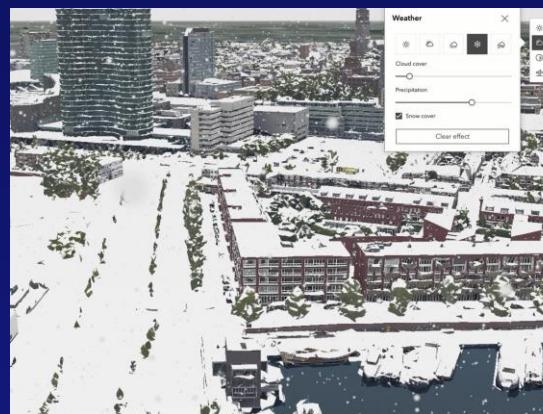
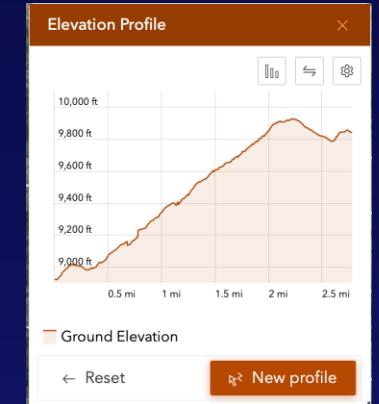
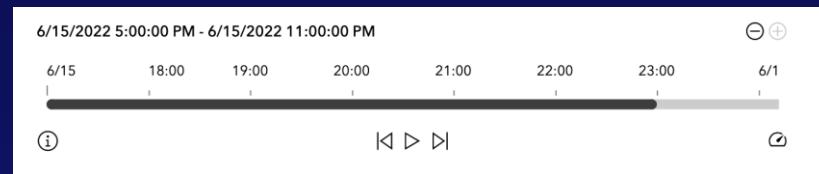
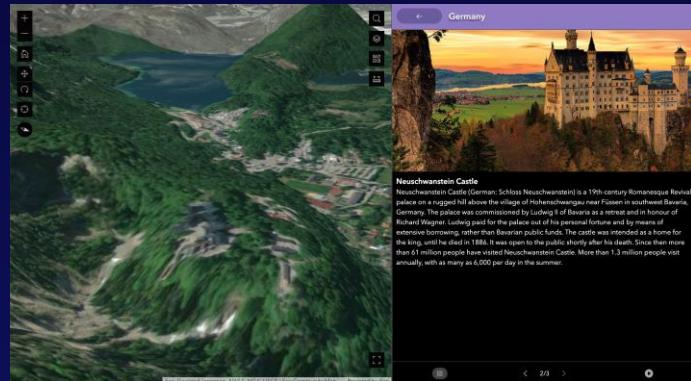
Widgets

Building Block

```
const layer = view.map.addLayer(layers.geojson);
view.whenLayerView(layer) // then(layerView => console.log(`// if there were problems with
    .catch(console.error));
```

Types of Widgets

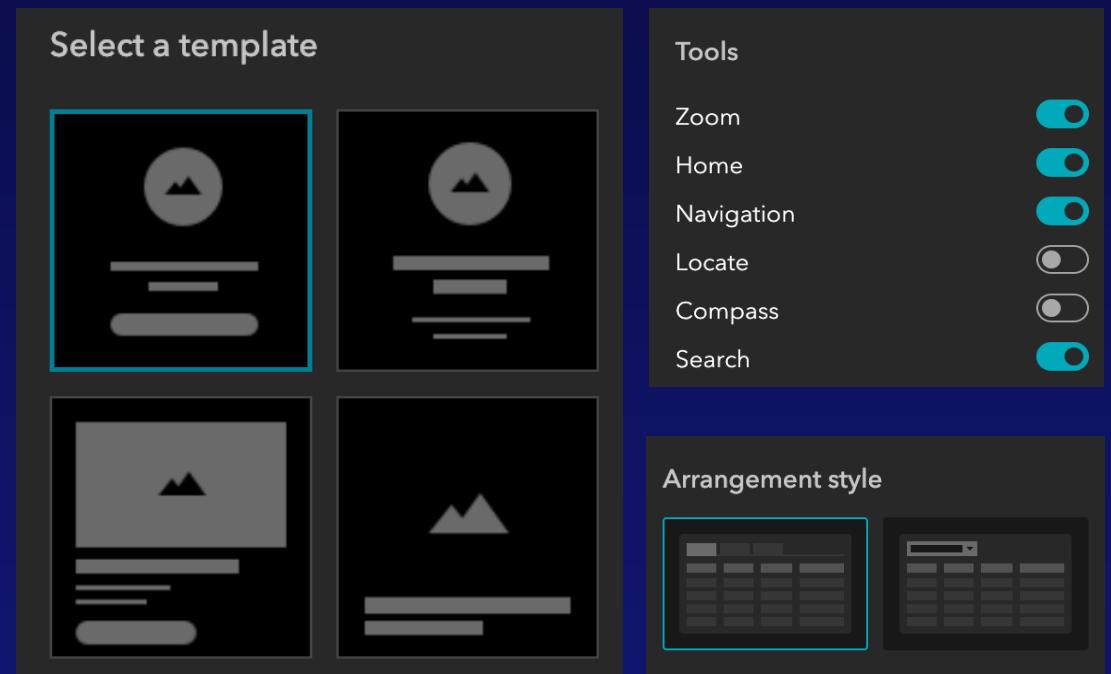
- Map centric
- Data centric
- Page elements
- Menu and toolbars
- Layout
- Section



	11112 Resort Road Pleasant Lake (Jackson County)
	122 Muskegon Avenue Muskegon, City of (Muskegon County)
	124 West Front Street Traverse City, City of (Grand Traverse County)
	12920 Second Avenue Highland Park, City of (Lake County)
	1515 Madison Ave. SE and 355 Cottage Grove SE Grand Rapids, City of (Kent County)

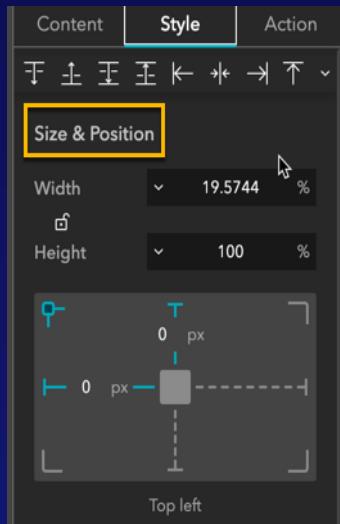
Widget Content

- Select data
- Options
 - Tools, Modes, Templates

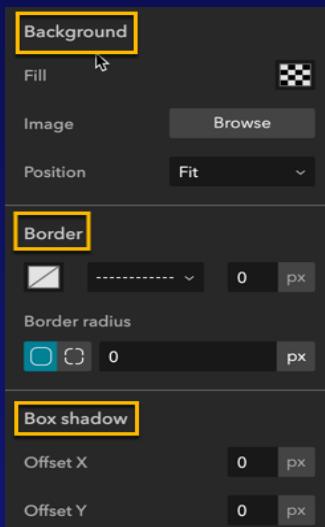


Widget Style

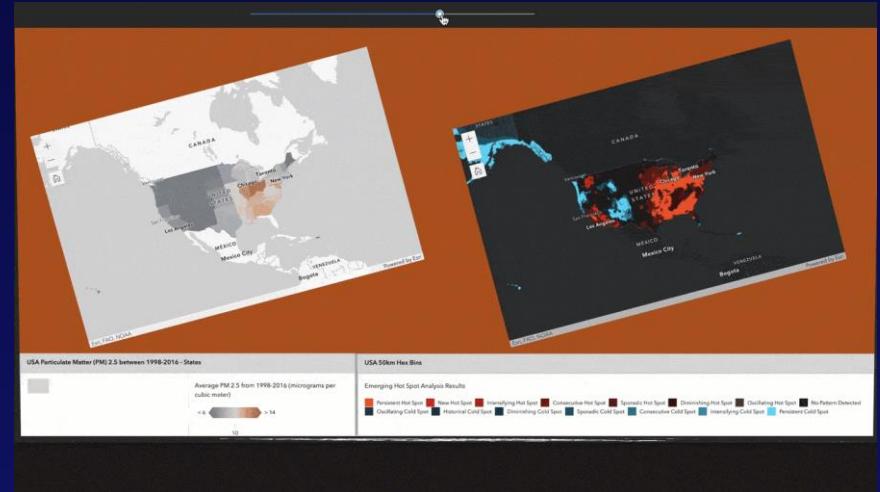
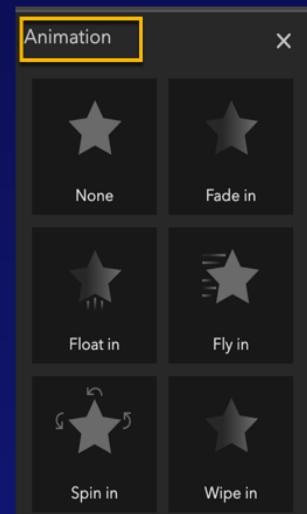
Size & Position



Background, Border & Box shadow

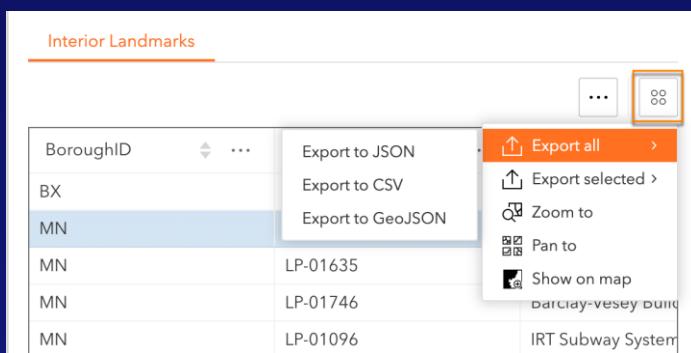


Animation



Actions

- Widgets talk with each other
- Data action allows for user interaction
- Message action executes automatically at runtime



Data action

The Data action configuration panel for "Table 1". It shows a tab bar with "Message action" and "Data action" (which is selected). Below is a section titled "Enable data action" with a toggle switch. A yellow box highlights this section. The main area lists data actions: "Pan to", "Show on map", and "Zoom to", each with a checkbox and a description. An "Export" button is at the bottom.

Message action

The Message action configuration panel for "Map 2". It shows a tab bar with "Message action" and "Data action" (selected). Below is a "Add a trigger" button. A yellow box highlights the "Extent Changes" section. This section contains a "Map 1" panel with "Zoom to" and "+ Add action" buttons.

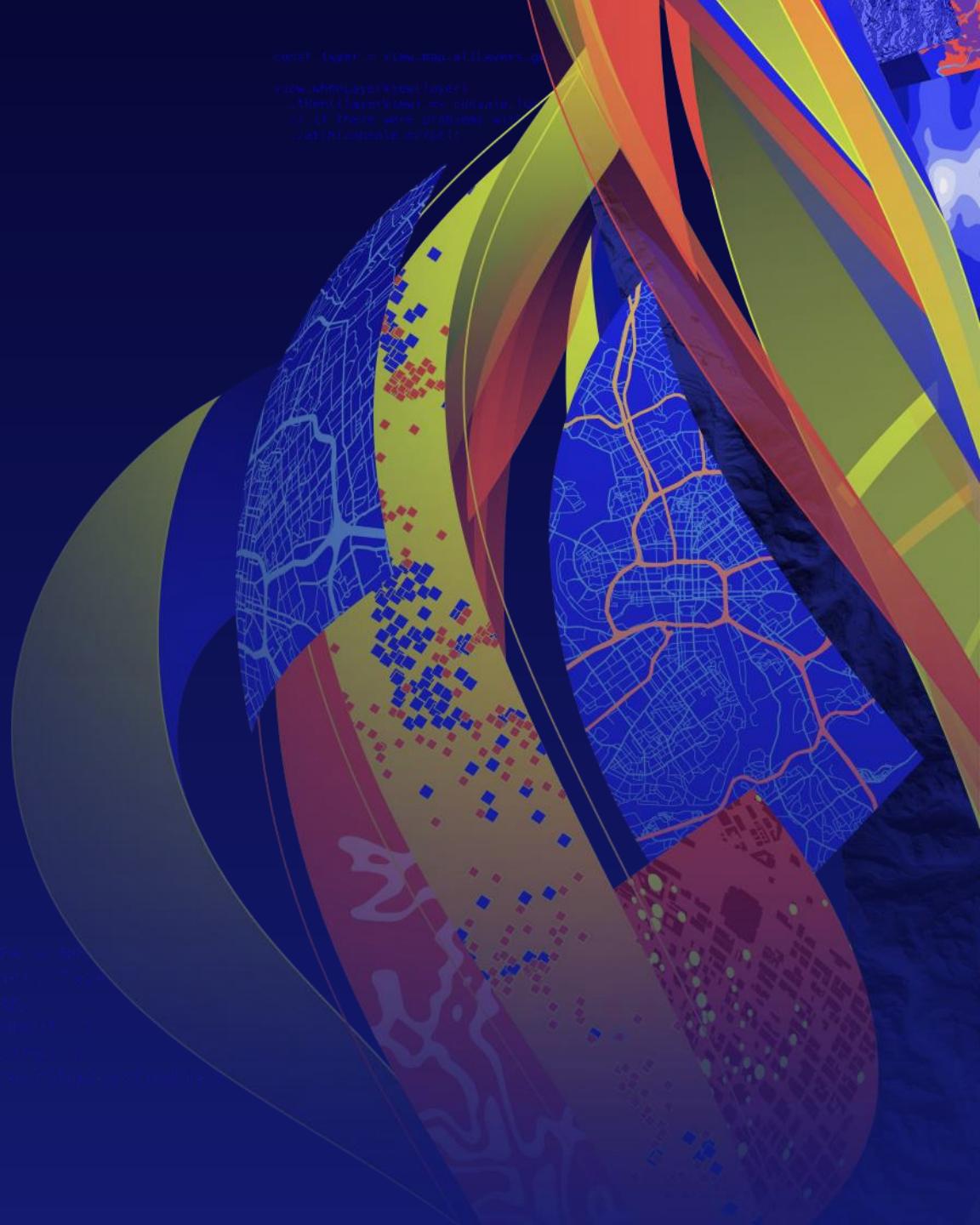
Message Action

- A trigger broadcasts a message
- Targets listen to the message
- Actions by targets

Trigger	Target	Action
Extent Changes from Map 1	Map 2	Zoom to the same extent as Map 1
	Framework (data)	Filter Data Records For example, List 1 displays only features within the current map extent

Data Sources

Building Block

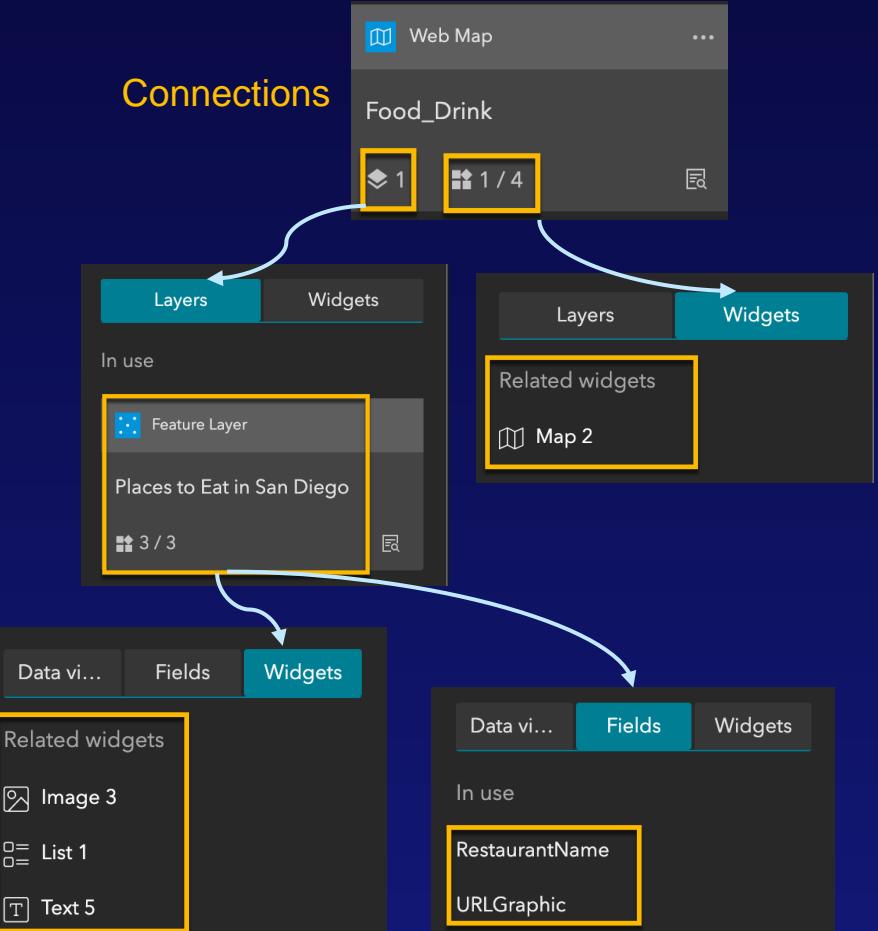


```
const layer = view.map.getAllLayers().get(0);  
view.whenLayerViewed(layer)  
.then(layerView => console.log(  
// If there were problems with  
// catching errors:  
layerView.getError())
```

```
const view = new  
MapGL({ container: 'map',  
mapStyle: 'mapbox://style/.../  
zoom: 10, center: [...]
```

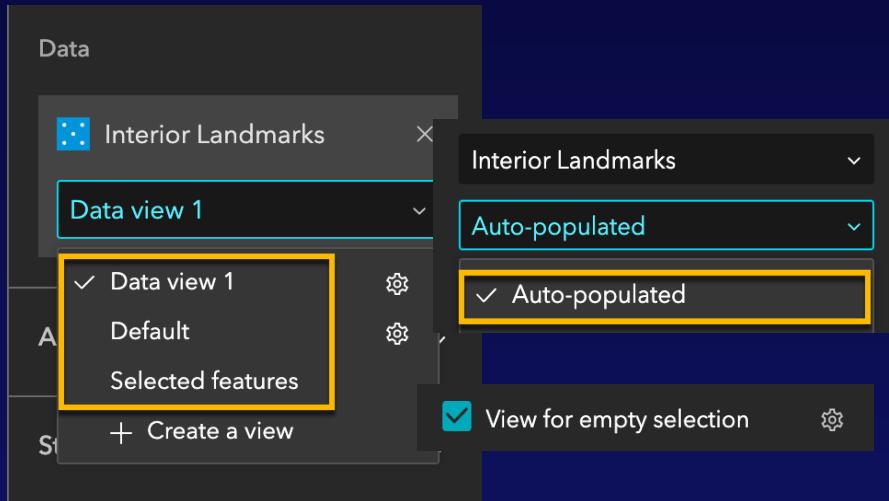
Data Source

- Manage and share data at the application level
 - Hosted feature layers
 - 3D Object and Point scene layers that support querying
 - Scene layers with associated feature layers
 - Feature, scene, and map services
 - Feature collections
- Show connections between Map, Layer, Field, Widget



Data Source Views

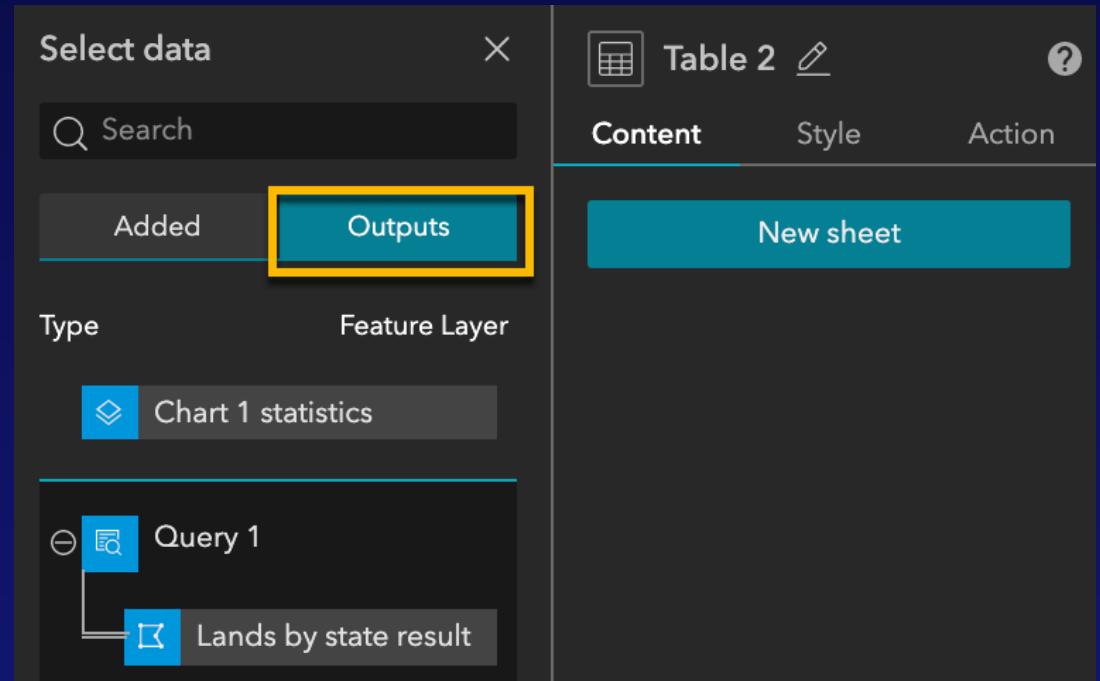
- Default view
- Selected features' view
 - Use “View for empty selection” option when the app starts
- Auto-populated view (List Widget)
- Data view



Filter	Sort	Records	Distribute ...	GlobalID	website	In Places	Notes	OBJECTID	pho
				5b146479...		Yes	Park provi...	1	
				7177d821...		Yes	Park provi...	2	
				769c412b...		Yes	Park provi...	3	
				66ccd7cc...		Yes	Park provi...	4	
							Park provi...	5	
							Park provi...	6	
							Park provi...	7	
							Park provi...	8	
							Park provi...	9	
							Boat Ramp	10	
							Boat Ramp	11	
							Restroom	12	
							Restroom	13	
							Picnic Area	14	

Output Data Source

- Generated by widgets at runtime
 - Chart, Query, Directions
- Can be other widget's data source
 - such as Table and Text



Theme Building Block

```
const layer = view.map.getLayers().get(0);
view.whenLayerView(layer)
    .then(layerView => console.log(
        // If there were problems with
        // catching errors:
```

```
const view = new MapView();
view.create();
view.whenReady()
    .then(() => {
        const map = view.getMap();
        map.setTheme('light');
        map.setAttributionControl(true);
        map.setAttributionControlOptions({
            position: 'top-right',
            offset: [10, -10]
        });
    })
    .catch(error => {
        console.error(error);
    });
});
```

Theme

- Define a set of color and font
- Customized options
 - Color
 - Font style
 - Font size

Default

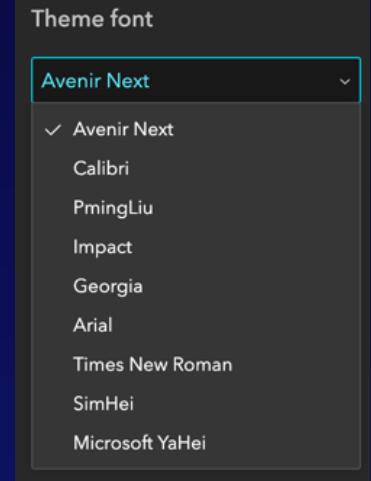
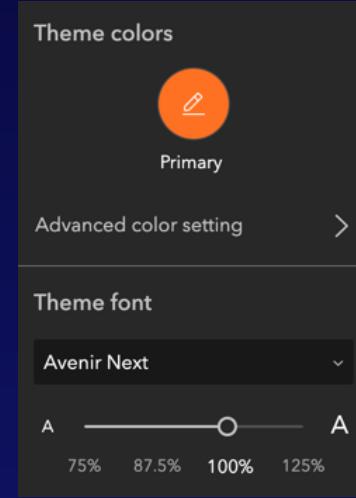
Dark

Vivid

Ink

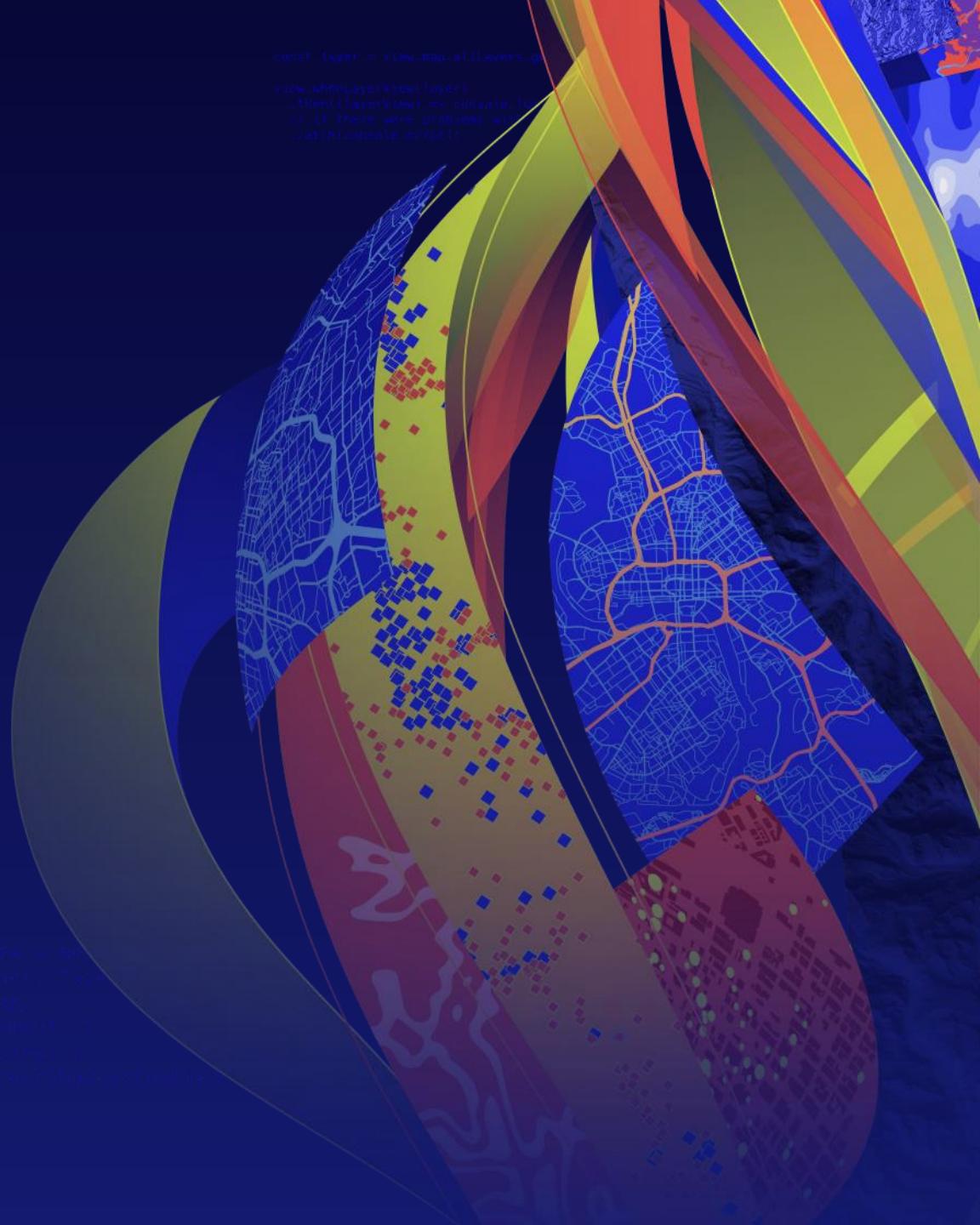
Mysterious

Shared



Extensibility

Building Block

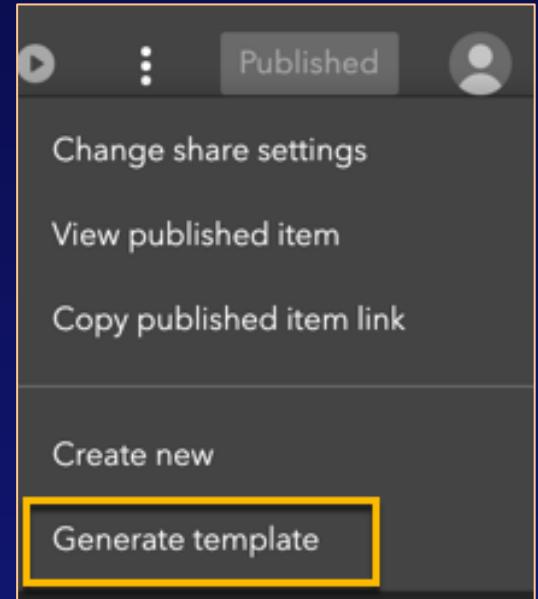
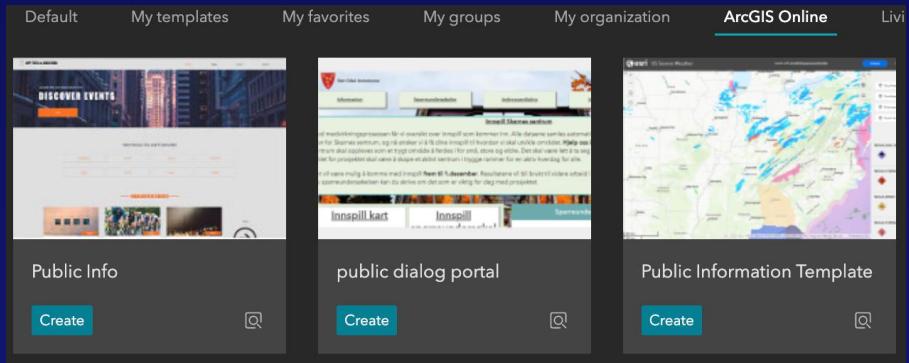


```
const layer = view.map.getAllLayers().get(0);  
view.whenLayerViewed(layer)  
.then(layerView => console.log(  
// If there were problems with  
// catching errors:  
layerView.getError())
```

```
const view = new  
MapGL({container: "map",  
mapStyle: "mapbox://style/ldm1jzv00000000000000000000000000",  
zoom: 10, longitude: -122.4, latitude: 37.7});  
  
view.on("load", () => {  
  const layer = view.map.getAllLayers().get(0);  
  view.whenLayerViewed(layer)  
.then(layerView => console.log(  
// If there were problems with  
// catching errors:  
layerView.getError())  
});
```

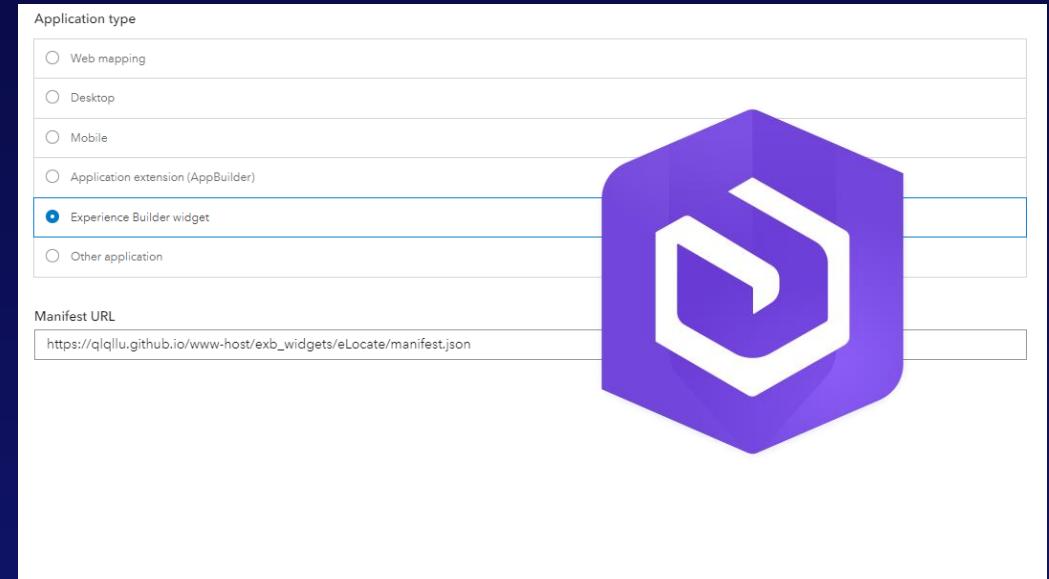
Generate templates

- Create your own starters for reuse and branding
- Shared with others



Custom Widget Integration in ExB

- Custom widgets
 - Create your own widget
 - Download widgets from ArcGIS Marketplace
- Add custom widgets in
 - ArcGIS Enterprise 11.1
 - Developer Edition
- Custom widget will be part of OOTB widgets
 - Available to you and your users to create new web experiences





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OF
WHERE®

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```
const view = new SceneView();
view.container = "viewDiv";
view.map = map;
view.environment = {
    lighting: true,
    atmosphere: true
};
```

E/SCRIPT>

LIVE
BY
THE
CODE