ArcGIS API for JavaScript: An Introduction

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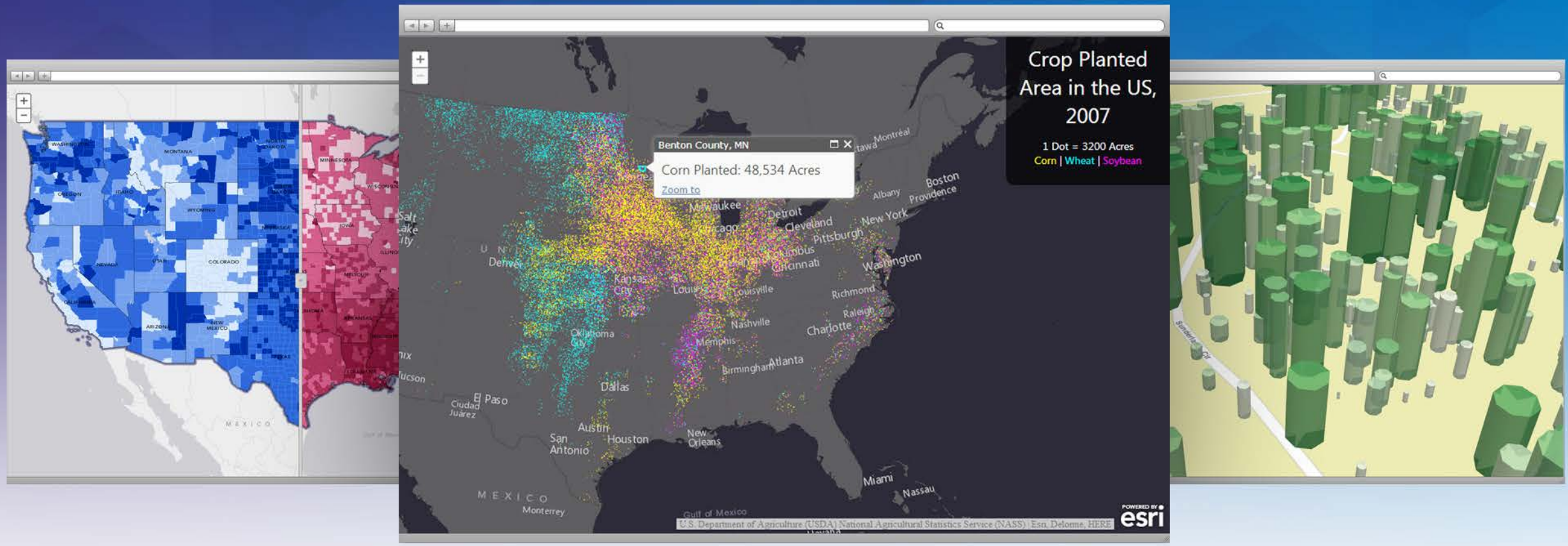
Overview

- JavaScript API and the ArcGIS platform
  - Web maps
  - Hosted services
- Getting started with the API – resources to know
- JS functionality:
  - Adding layers/web maps, popups, rendering
  - 10.3 updates
  - Widgets
- Developer resources

ArcGIS API

FOR JAVASCRIPT



Take advantage of the ArcGIS platform

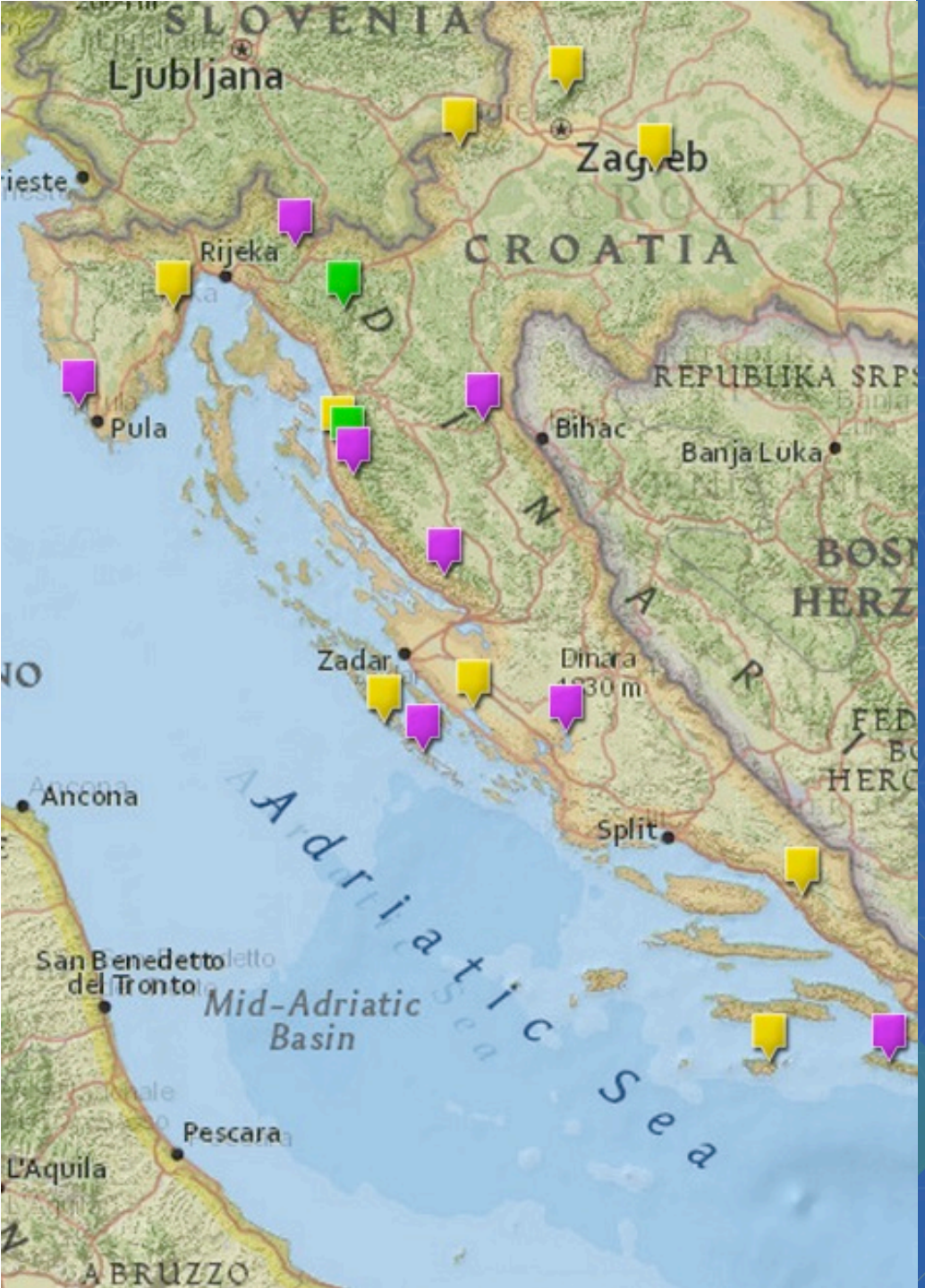
- Web maps
- Hosted feature services
- Configure map/layer(s)
- Restrict content if applicable

“The web map templates have certainly give me new perspective on rapid app deployment, especially if you're used to coding from scratch with the Javascript API.

The web map templates have almost everything you need and with some customisation and redeployable code you can minimize your coding time a lot….”

- fcbassongis (via GeoNet)

Demo: Web Maps



Working with the API

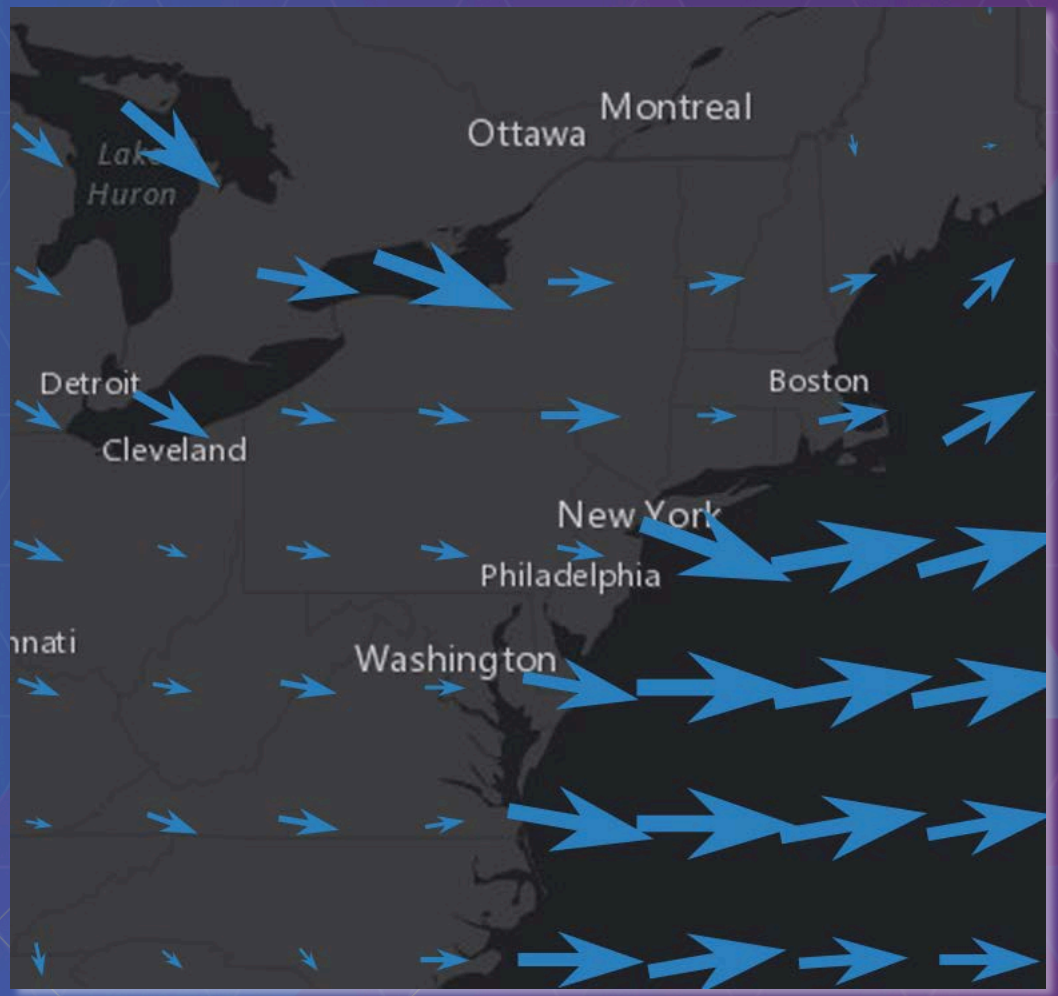
Get started with the API

- Provides more granular control over the application
- Where to begin?
  - http://developers.arcgis.com/en/javascript
- How do I?
  - https://developers.arcgis.com/javascript/jshelp/intro_accessapi.html
  - https://developers.arcgis.com/javascript/jsapi/api_devenv
- Get familiarized with the doc
  - API Reference, Samples, and conceptual topics
- User communities, e.g. GeoNet

Working with layers

- Tiled Layers
- Feature Layers
- Dynamic Map Layers
- CSV
- KML
- GeoRSS
- Image Layers
- Streaming features
- WMS, WMTS
- Web Tiled Layer

ArcGISImageServiceVectorLayer



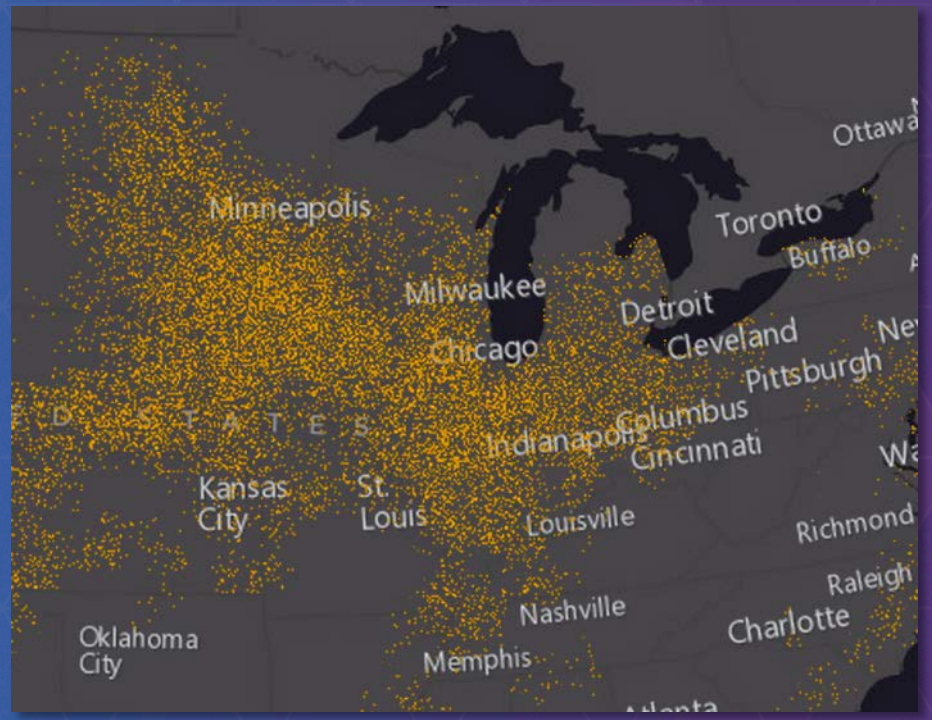
Layer coding pattern

- Create layer
- Set layer specific properties
- Add to map

```
var params = new ImageServiceParameters();
params.noData = 0;
var layerUrl = "http://sampleserver6.arcgisonline.com/arcgis/rest/services/Toronto/ImageServer";
var imageServiceLayer = new ArcGISImageServiceLayer(layerUrl, {
  imageServiceParameters: params,
  opacity: 0.75
});
map.addLayer(imageServiceLayer);
```

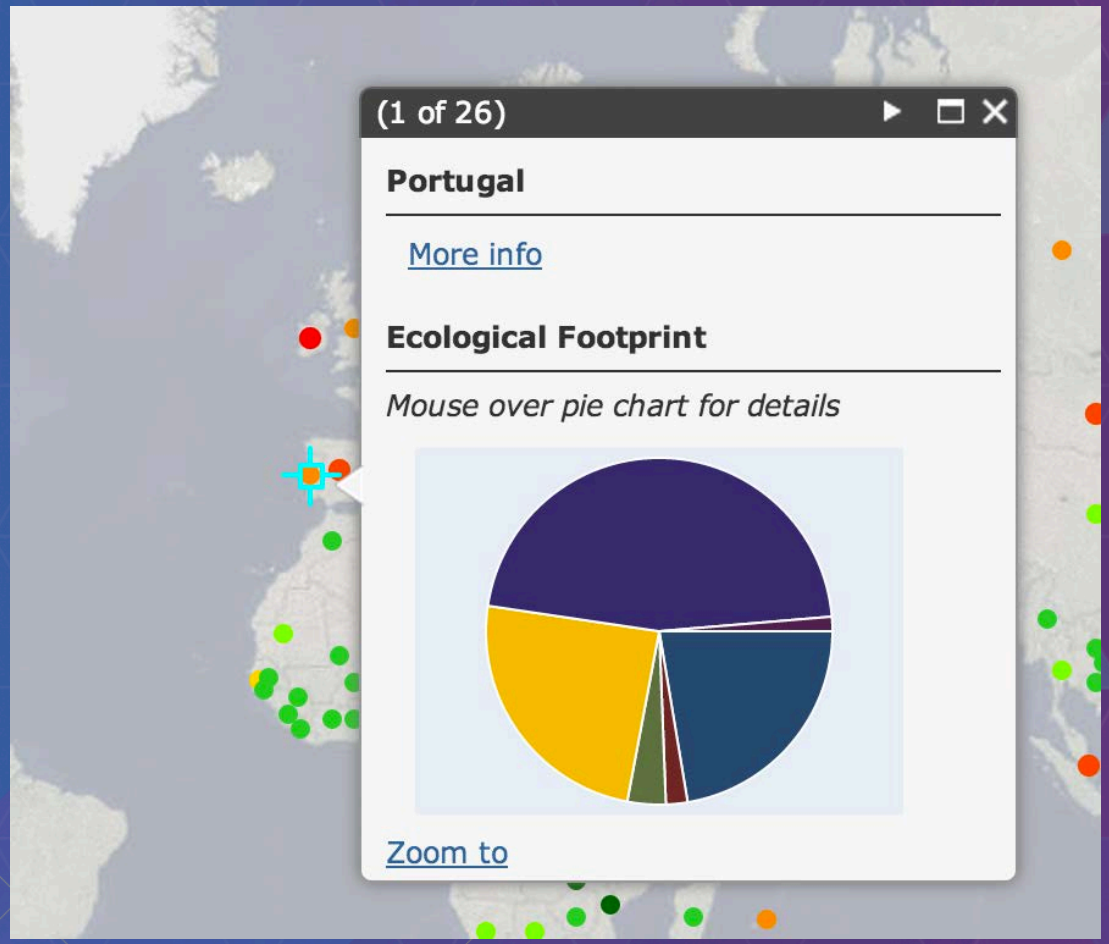
Feature layers

- Versatile
- Various modes
- Editing
- Rendering
  - HeatmapRenderer
  - DotDensityRenderer
  - TemporalRenderer
  - VectorFieldRenderer



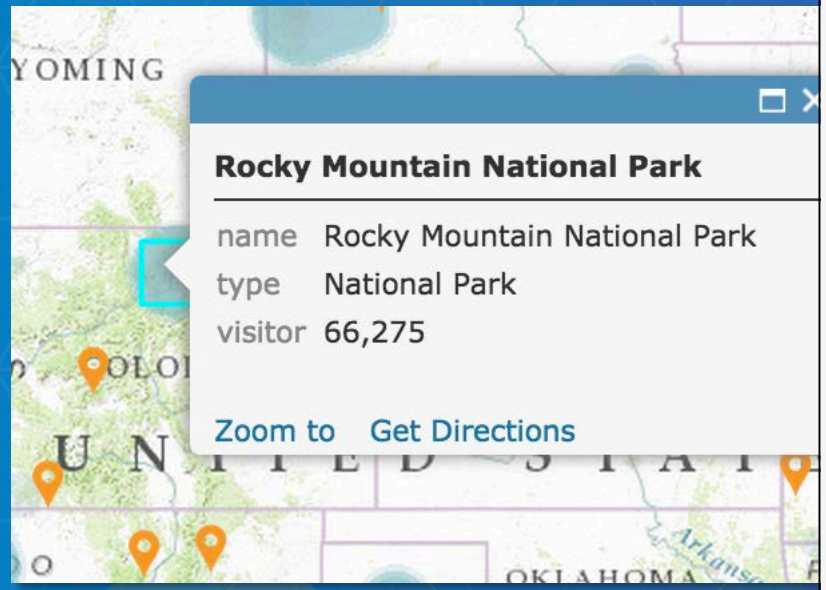
Simplify code by adding web maps

- esri/arcgis/utils
  - createMap

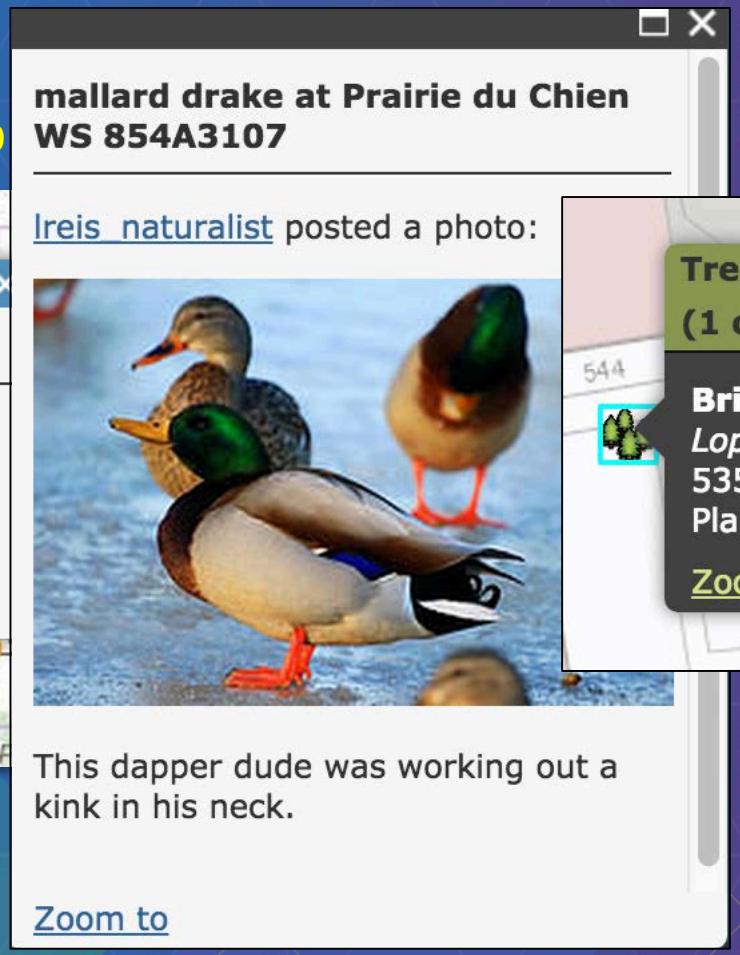


Creating a Popup

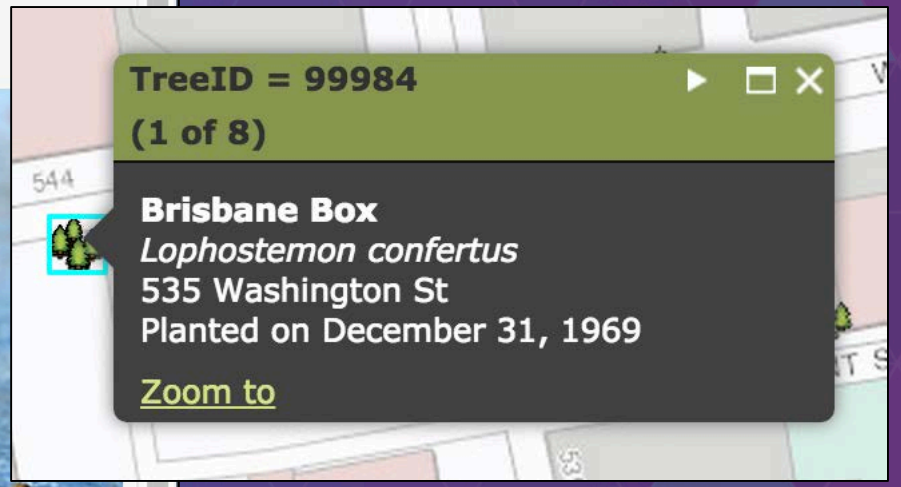
Popup carried over from web map



Popup with formatted content

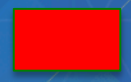


Popup with customized UI



Demo

Visualizing your data

- SimpleMarkerSymbol 
- PictureMarkerSymbol 
- SimpleLineSymbol 
- CartographicLineSymbol 
- SimpleFillSymbol 
- PictureFillSymbol 

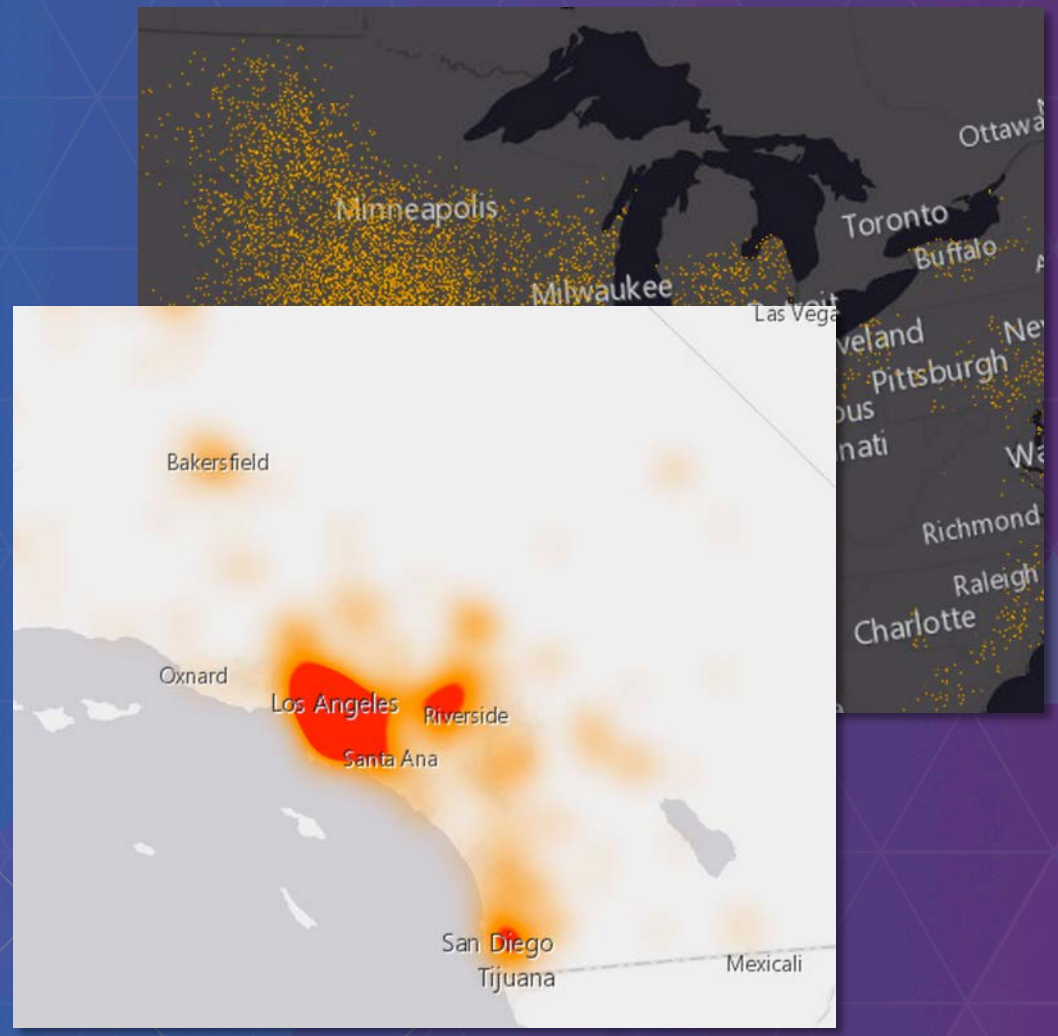
Symbols are used to display points, lines, and polygons on the graphics layer.

Symbol is the base symbol class and has no constructor. Instead, use the following:

- **Points:** SimpleMarkerSymbol, PictureMarkerSymbol
- **Lines:** SimpleLineSymbol, CartographicLineSymbol
- **Polygons:** SimpleFillSymbol, PictureFillSymbol
- **Text:** TextSymbol, Font

Visualizing your data

- SimpleRenderer
- ClassBreaksRenderer
- UniqueValueRenderer
- ScaleDependentRenderer
- DotDensityRenderer
- HeatMapRenderer
- TemporalRenderer



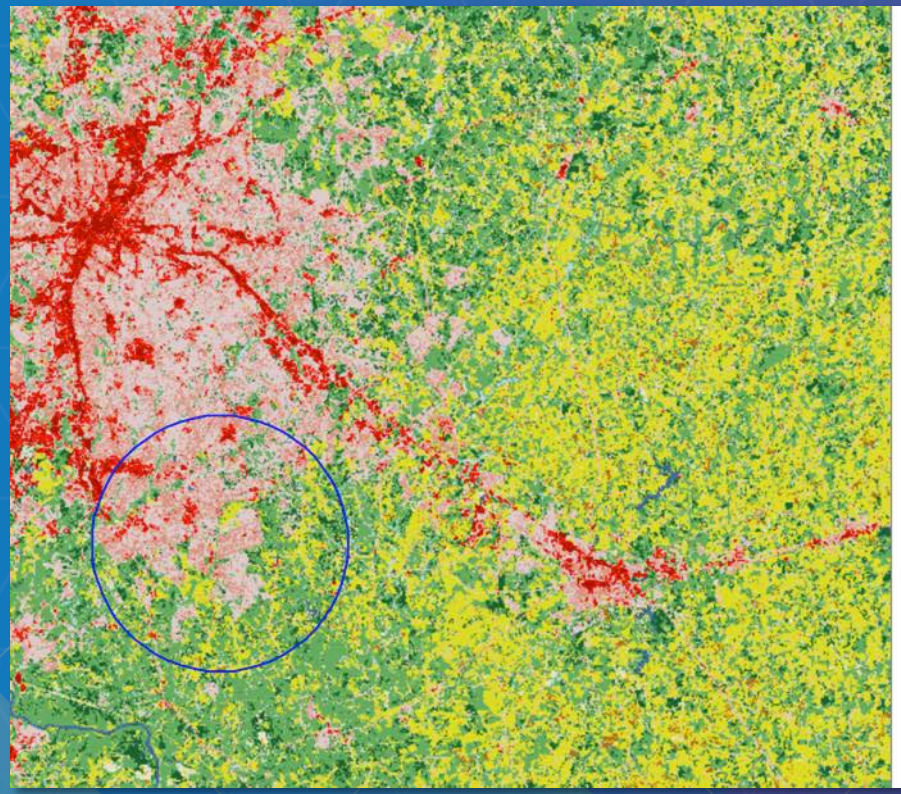
Labeling data

- LabelLayer class
- showLabels
- constructor option for map
  - Uses labelingInfo off of the featurelayer
  - since 3.7

10.3 Functionality – Streaming features

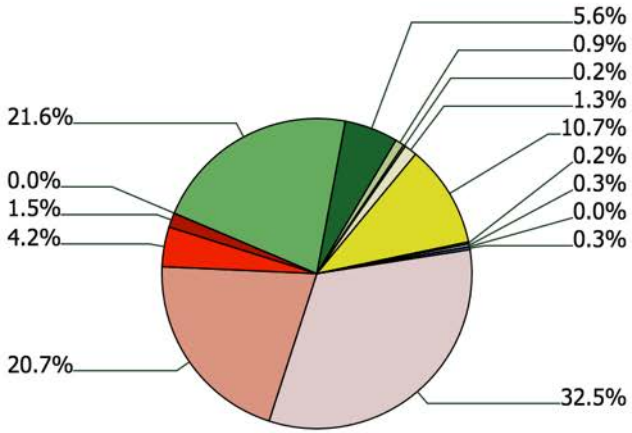
- StreamLayer class
  - Works with stream services from 10.3 ArcGIS Server

10.3 Functionality – Advanced Image Server

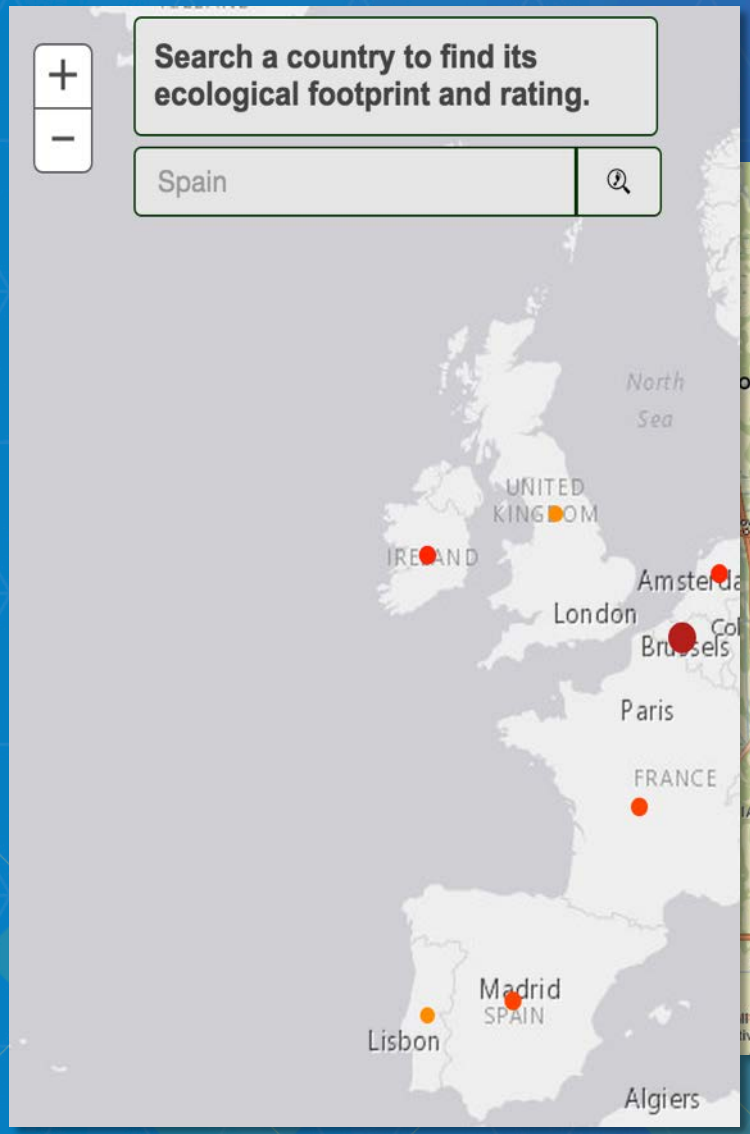


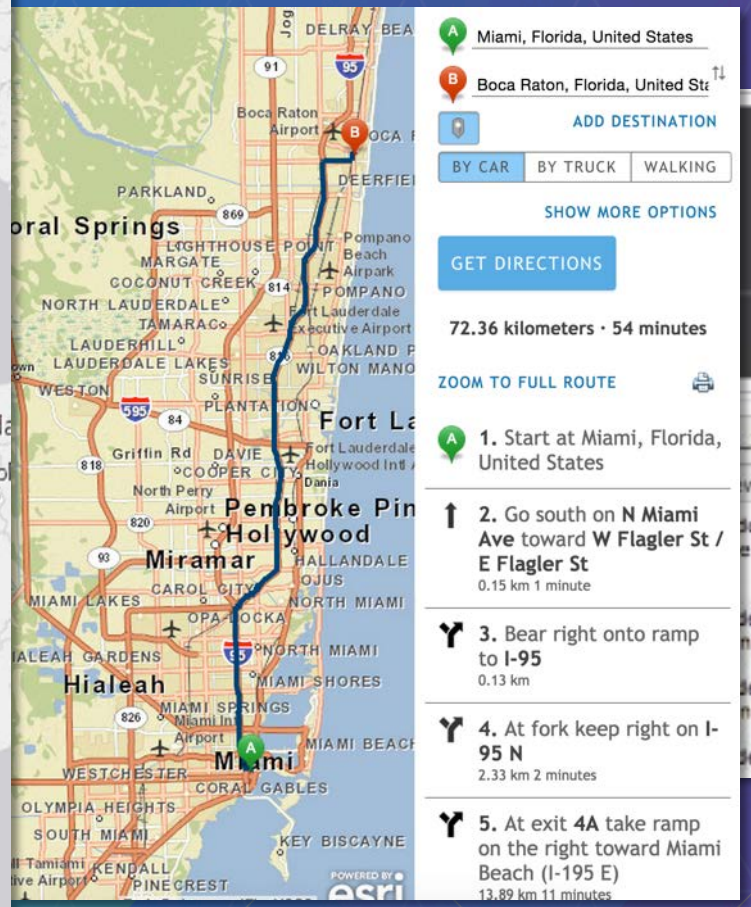
Land Cover Composition in 5 Miles Radius

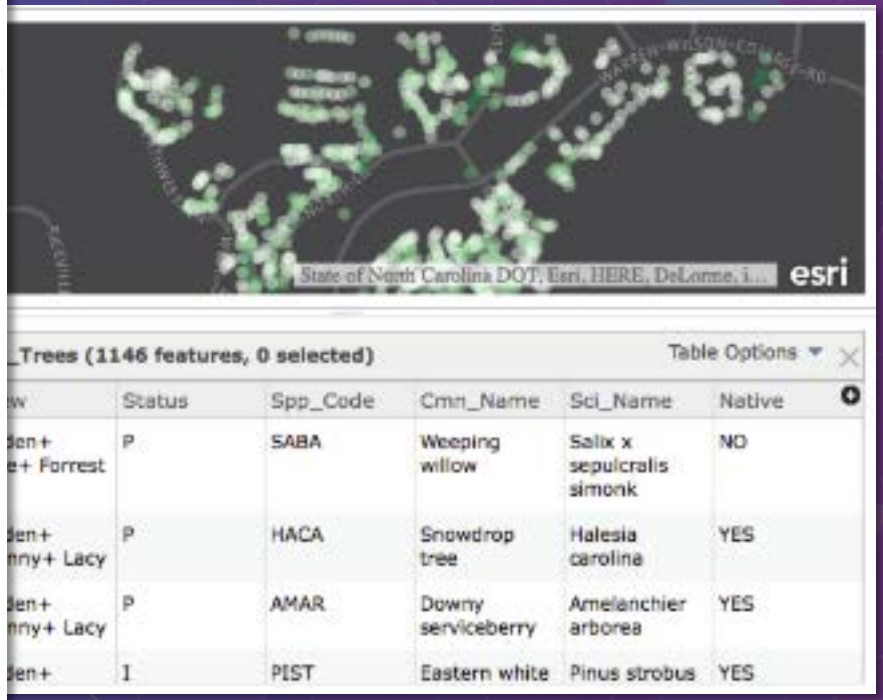
This app dynamically generates land cover composition within a 5 mile radius. Hold the ALT key and hover the cursor on the map using the mouse. Move the mouse around while holding the ALT key to get live updates. Release the ALT key to go back to navigation mode.



Working with the API: 40+ Widgets

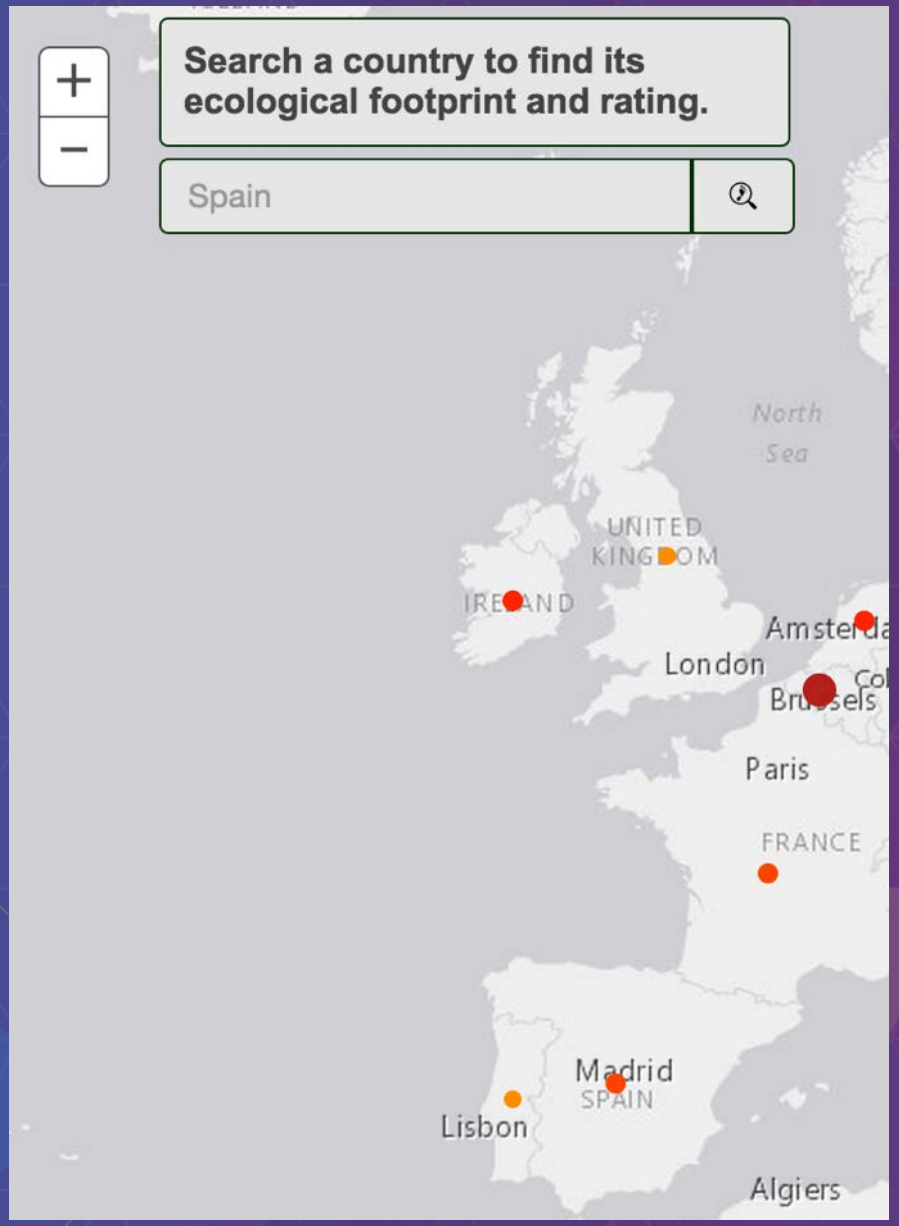






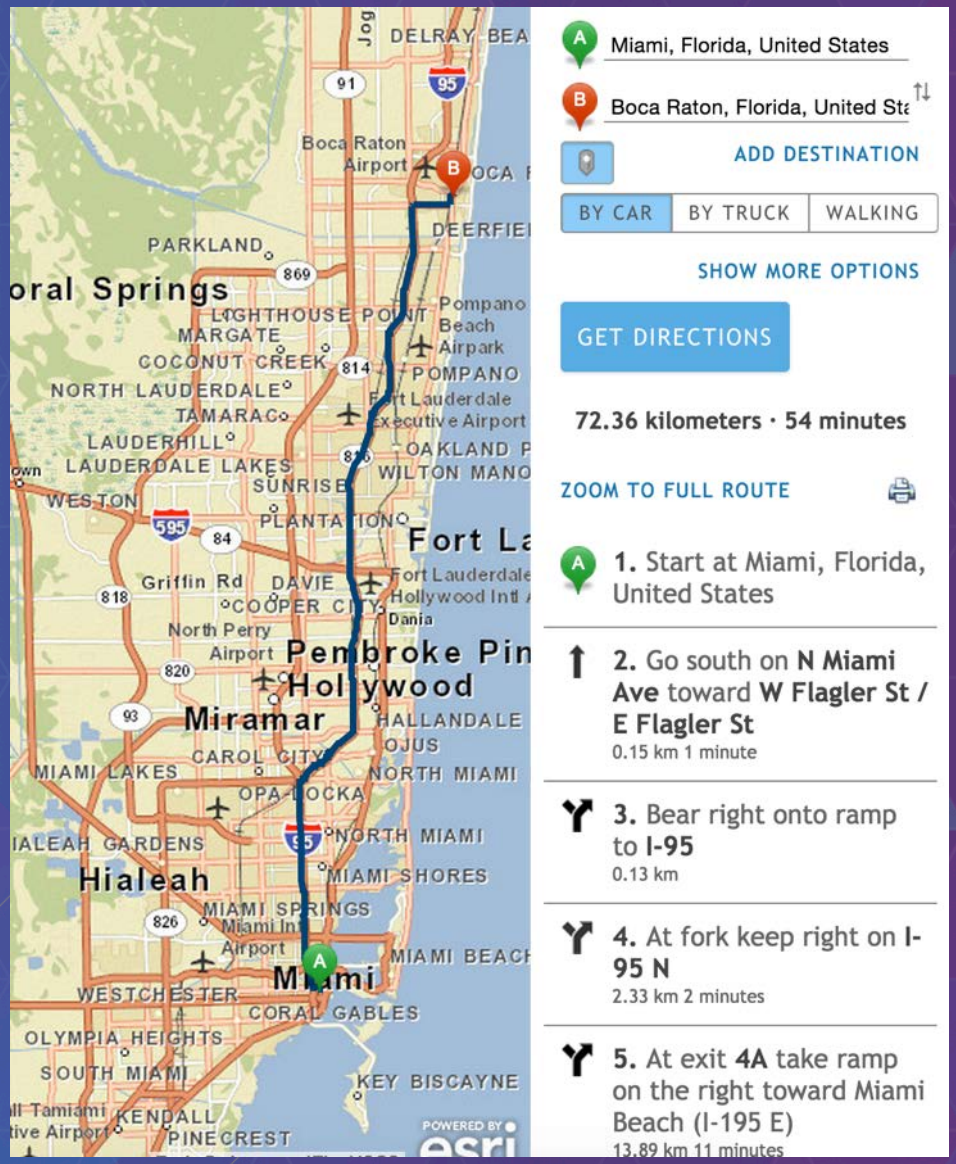
Widgets: Search

- Search geocode locators and/or feature layers
- You set the source for the search
- New at version 3.13
- Geocoder widget and then some!!!!

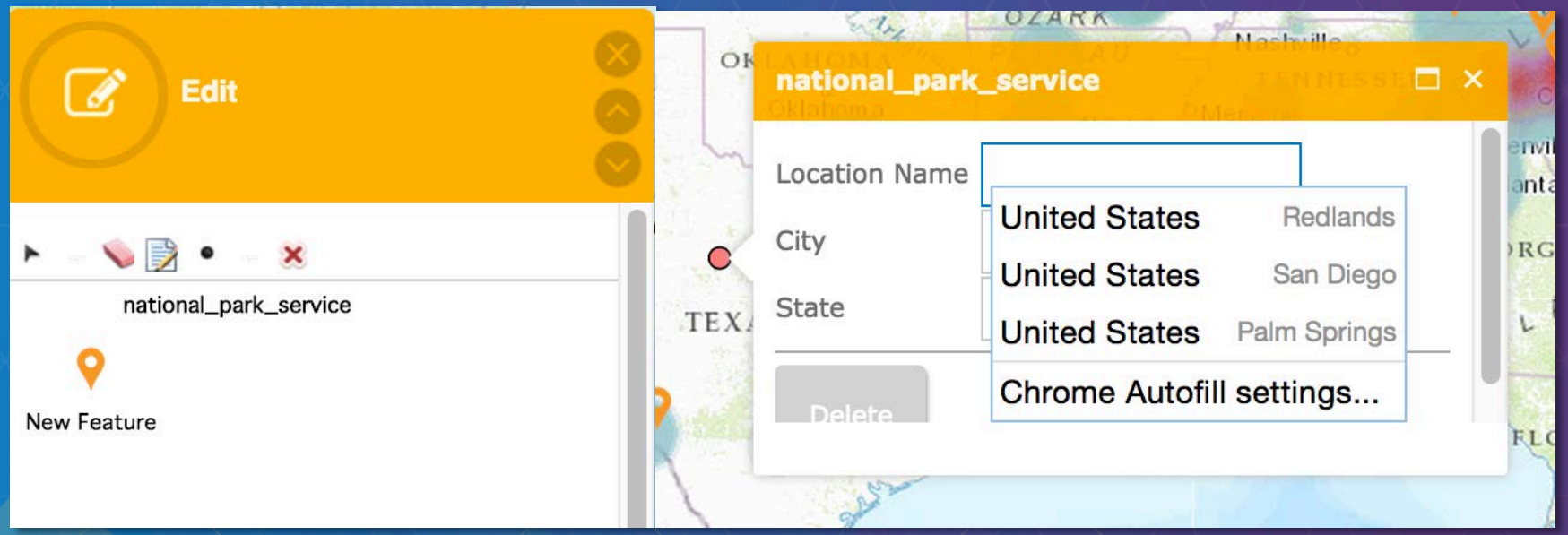


Widgets: Directions

- Locate me
- Click on the map for from/to locations
- Works with traffic



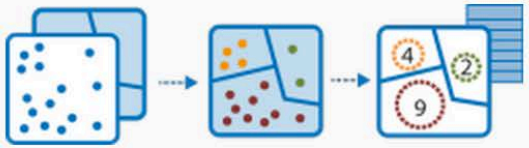
Widgets: Editor



Widgets: FeatureTable (beta)

Location Number	Location Name	Address	City	State	Zip Code	Phone Number	Fax Number	Latitude	Longitude	FID
npsa	National Park of American Samoa	Superintendent, National Park of American Samoa	Pago Pago	AS	96799		(684) 699-3986	-14.29129	-170.696426	1
NPNH	National Parks of New York Harbor	National Parks of New York Harbor, Federal Hall National Memorial 26 Wall Street	New York	New York	10005	(212) 668-5180	(212) 668-2375	40.7073139	-74.010262	2
NABR	Natural Bridges National	Natural Bridges, HC-60 Box 1	Lake Powell	Utah	84533	(435) 692-1234 ext. 16	(435) 692-1111	37.593888	-110.009234	3

Analysis widgets

AggregatePoints [JavaScript API | REST API] (added at v3.6)	 Aggregate points into polygons where the points are located.	• **pointLayer:** point • **polygonLayer:** polygon
CalculateDensity [JavaScript API | REST API] (added at v3.12)	 Create a density map from point or line features by spreading known quantities of some phenomenon (represented as attributes of the points or lines) across the map.	• **inputLayer:** any geometry • **boundingPolygonLayers:** polygon • **radiusUnits:** polygon • **areaUnits:** polygon

- Calculate drivetime
- Viewshed analysis
- Watershed analysis
- Hot spot analysis

Additional Resources

- Esri course: Building Applications with the ArcGIS API for JavaScript
- Esri webinar: Data visualization and time saving tips

- Dojo documentation
- JavaScript online training classes: free and fee-based

Additional presentations

- **JavaScript: What have you done for me lately?**
  - Tuesday 3/10, 2:30 – 3:30 Oasis 4
- **ArcGIS for JavaScript: Building Apps that Consume Web Maps**
  - Tuesday 3/10, 6:00 – 6:30 Demo Theater 2 – Oasis 1
- **ArcGIS Online and Portal: Developing Custom JavaScript Applications**
  - Wednesday 3/11, 1:00 – 2:00 Primrose C/D
- **ArcGIS for JavaScript: Data Visualization**
  - Thursday 3/12, 9:00 – 10:00 Pasadena/Sierra/Ventura
- **ArcGIS for JavaScript: Tips and Trips for Developing and Debugging …**
  - Thursday 3/12, 2:30 – 3:30 Primrose B
- **ArcGIS API for JavaScript: The Road Ahead**
  - Thursday 3/12, 5:30 – 6:30 Primrose B

Questions?

js.arcgis.com