

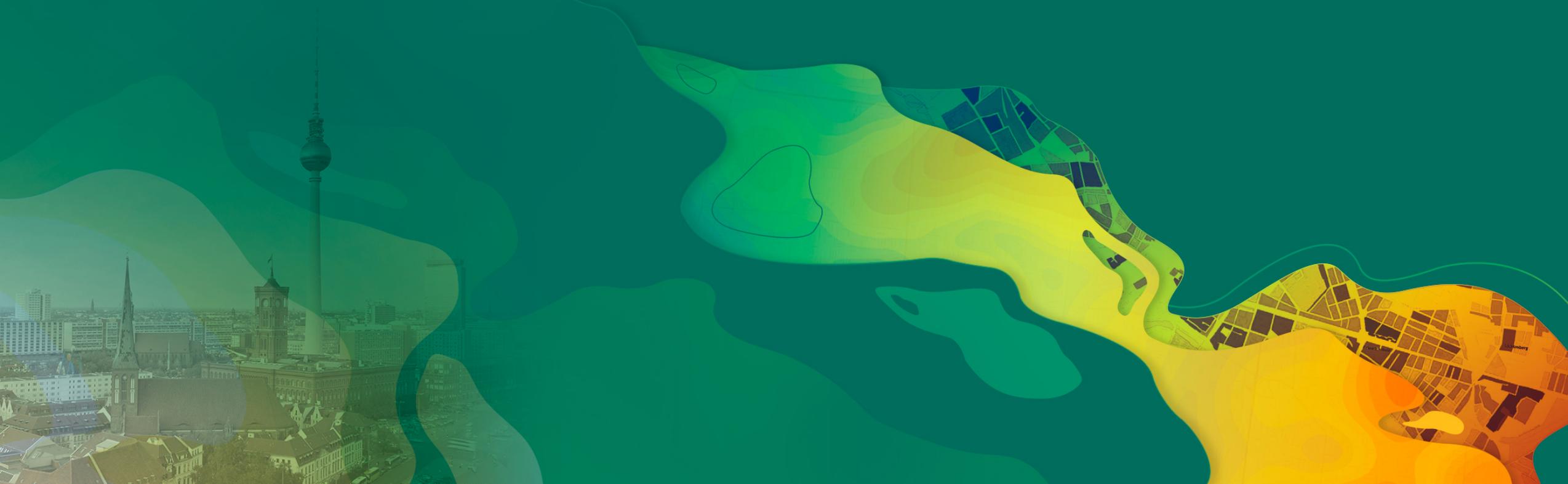


DEVELOPER  
SUMMIT

EUROPE 2018

# ArcGIS Runtime: ArcGIS Runtime SDK for iOS and macOS

Mary Harvey



# Agenda

- Getting Started
- Core Workflows
  - Map and MapView
  - Display data
  - Interact with the MapView
  - Geocoding & Routing
  - GPS
  - Tips and Information

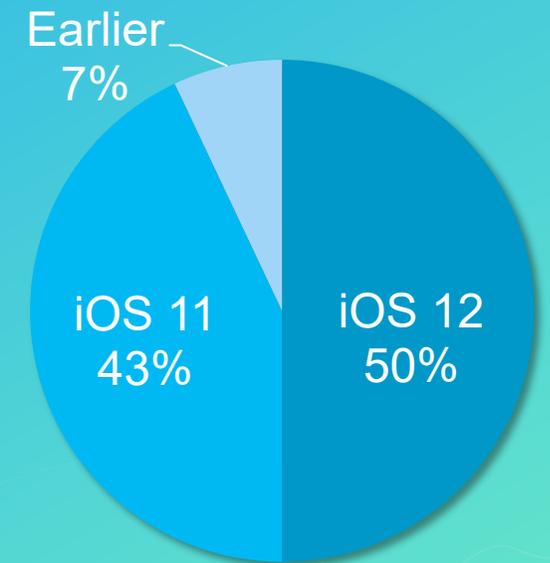
# Getting Started

Tools and resources



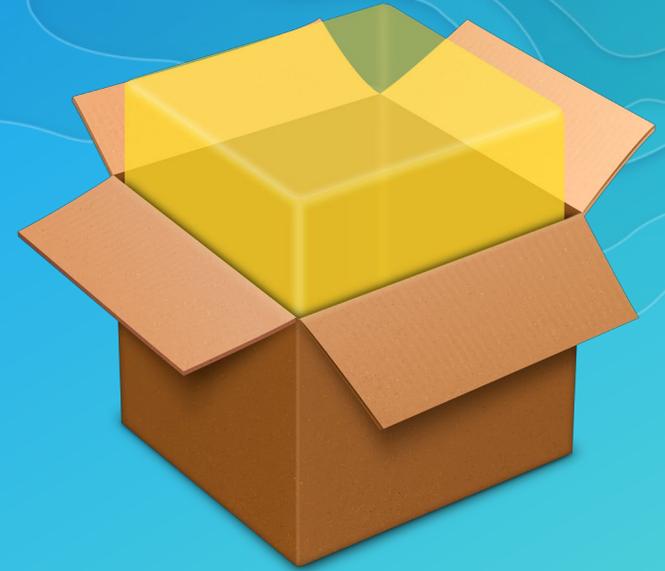
## You'll need...

- A Mac (macOS 10.12.6 or later)
- Xcode 10 and 9 (free from the Mac App Store)
- Apple Developer Account (free)
- Esri Developer Account (free)
  - (or an ArcGIS Online account)
- ArcGIS Runtime:
  - iOS 12, 11, 10 SDK
  - macOS Mojave (10.14), High Sierra (10.13) and Sierra (10.12)
  - Swift and/or Objective-C



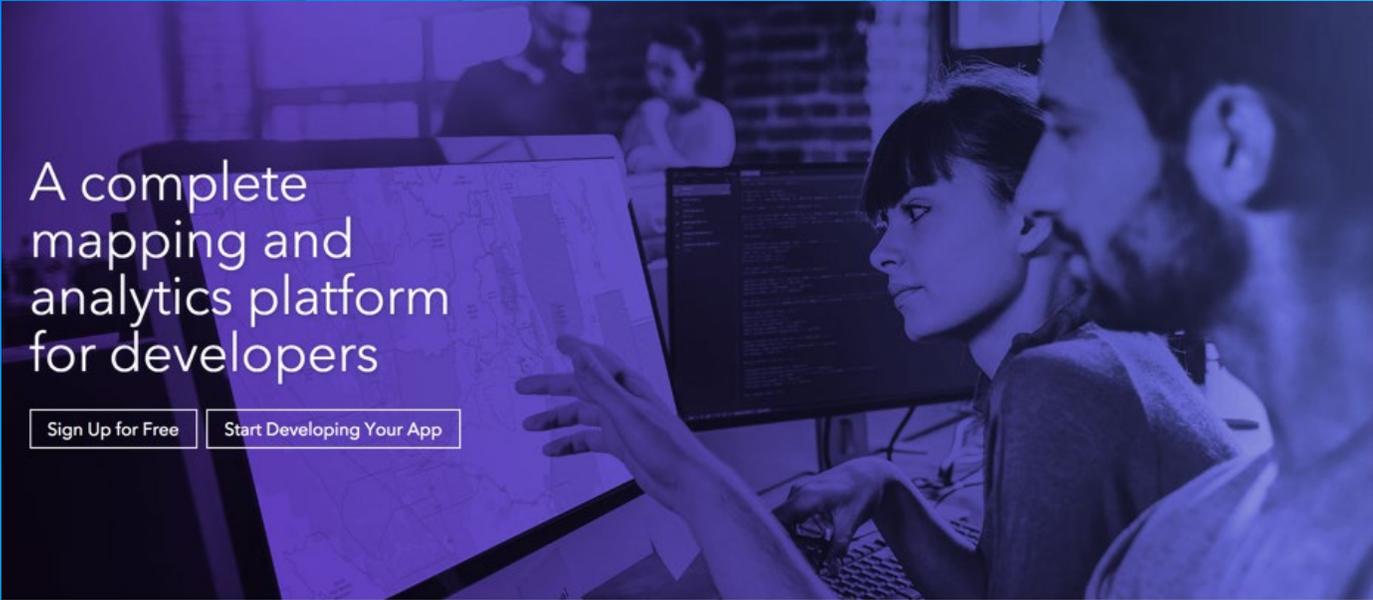
# Installation

- Download install package
  - Dynamic and static frameworks
  - Xcode integration – API reference
  - Basic starter samples
  - Legal material
- CocoaPods
- **TIP!** - Drag and drop Dynamic Framework into Project Target's **General>Embedded Binaries**



## Tips and Information !!

- Apple deprecating OpenGL and OpenGL ES with the releases of macOS 10.14 and iOS 12 (warning)
  - Good news – ESRI working to adopt Metal
  - Migrate to Metal version of ArcGIS Runtime SDK
  - <https://community.esri.com/community/developers/native-app-developers/arcgis-runtime-sdk-for-ios/blog/2018/06/18/the-arcgis-runtime-opengl-and-metal>
- What version of the SDK am I working with?
  - Extension to AGSBundle to return version of Runtime.
  - <https://github.com/Esri/data-collection-ios/blob/master/data-collection/data-collection/Extensions/Foundation/Bundle%2BVersion.swift>



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# Developers Site

[developers.arcgis.com](https://developers.arcgis.com)



# Core Workflows

The background features a teal-to-blue gradient. In the upper right, there are faint, white, concentric wavy lines. In the lower left, there are layered, wavy shapes in shades of purple and teal, resembling a stylized landscape or topographic map.

# View Maps and Scenes

## Map

Operational Layers

Basemap

## MapView



## Scene

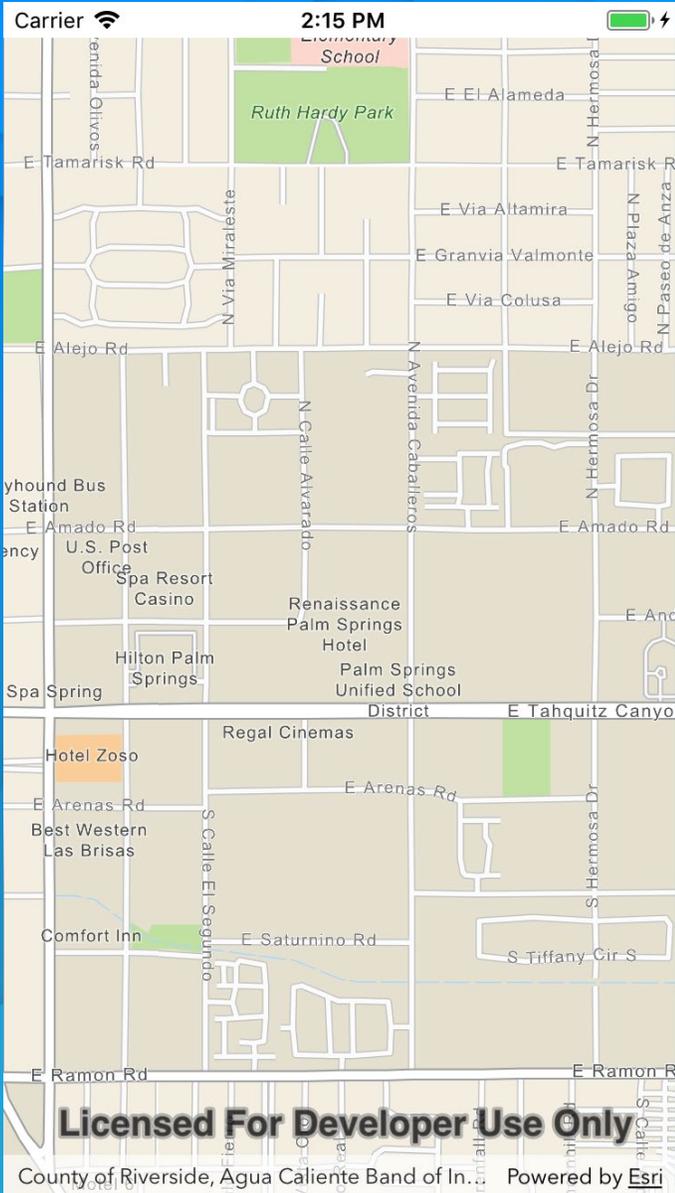
Operational Layers

Basemap

Surface

## Sceneview





# Hello World

Add a map, and geocode

## Hello World review...

- AGSMap + AGSMapView
- Working with Xcode
  - Storyboards
- Geocoding (AGSLocator)
- Viewpoints
- Graphics Overlays and Graphics
- Symbols

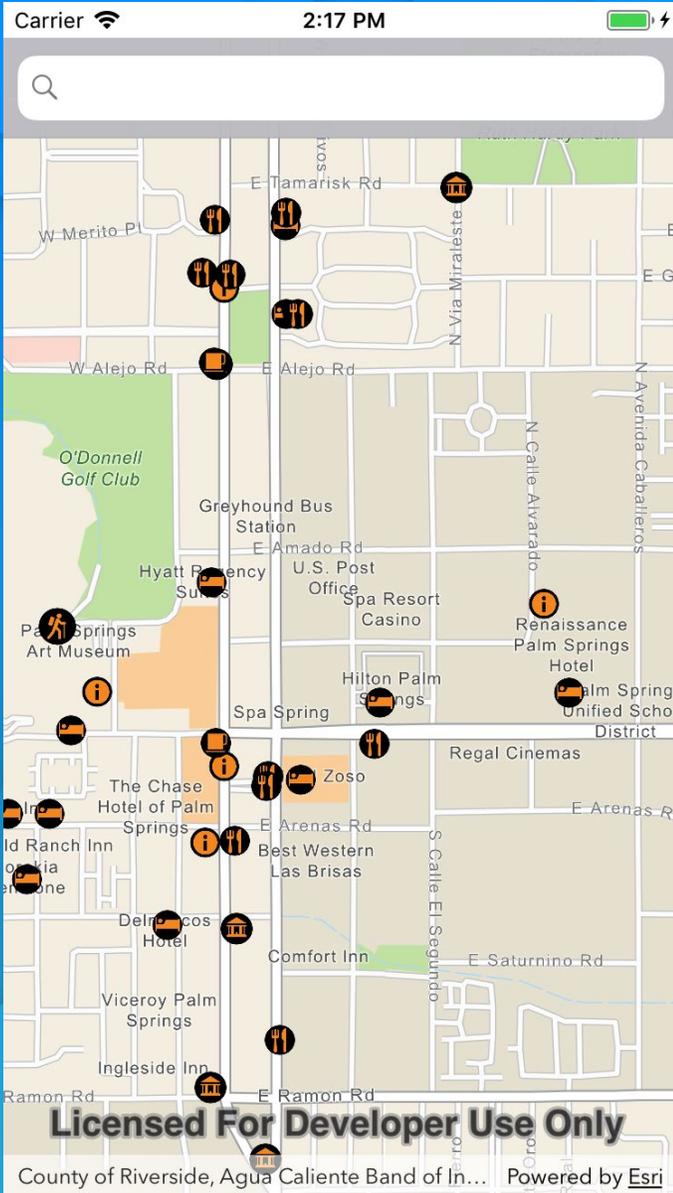
# Task Pattern

- Create with URL
  - geocoder, route solver, etc.
- Action with params
  - callback block
- Inspect for errors
- Work with results

```
locator.geocode(withSearchText: searchText) { (results, error) in
```

## Tips and Information !!

- Task and Job patterns and documentation
- Loadable Resources
- Use `AGSLoadObjects()` to wait for a few things to load

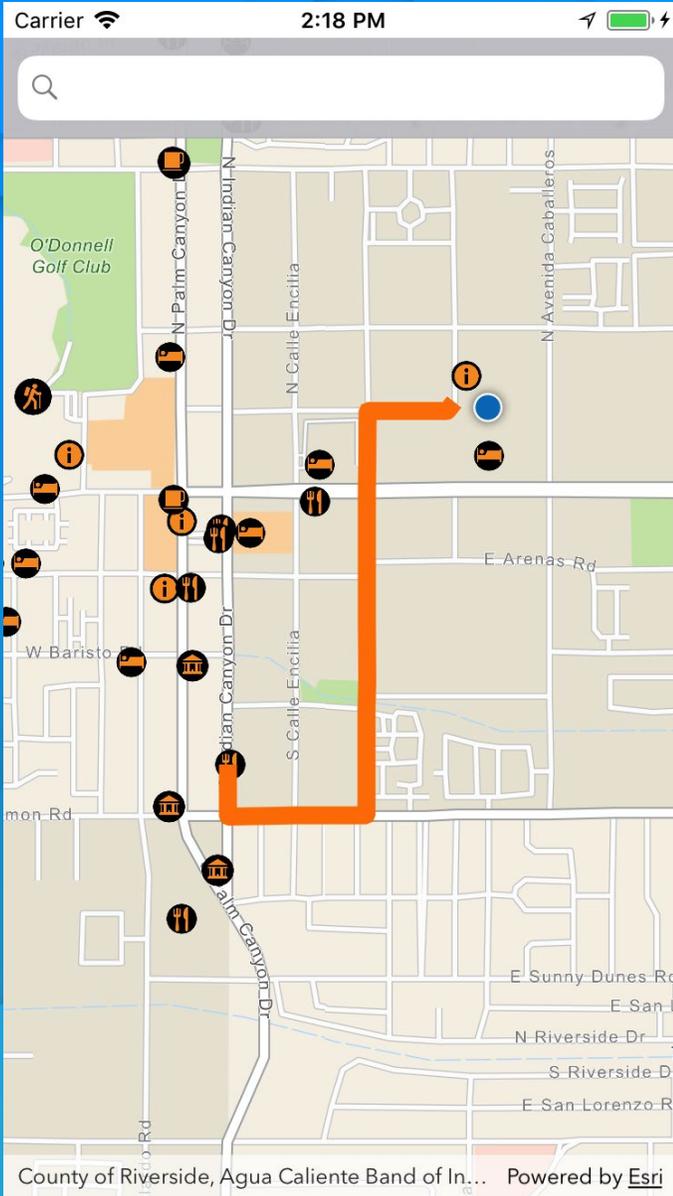


# Hello World++

Add some data to your map

# Hello World++ review...

- Add feature layer
  - Table to data source
  - Layer
- Map interaction (geoViewTouchDelegate)
- Read feature details
- Callouts



# Getting there

You CAN get there from here

## Routing review...

- Routes & Directions (AGSRouteTask)
  - Credentials
- Geometry builders
- Viewpoint with animation
- Renderers

## Tips and Information !!

- Async things...
  - Use `DispatchGroup()` to wait for a number of async operations to finish
  - KVO is no longer guaranteed to happen on the main thread as of 100.3. If you're observing something use `Dispatch` on the main thread if you're doing any UI work.
  - If observing a few things for the life of the view controller set up a class level variable. Keeps the KVOs alive.
    - `var observers:[NSKeyValueObservation] = []`

## Tips and Information !!

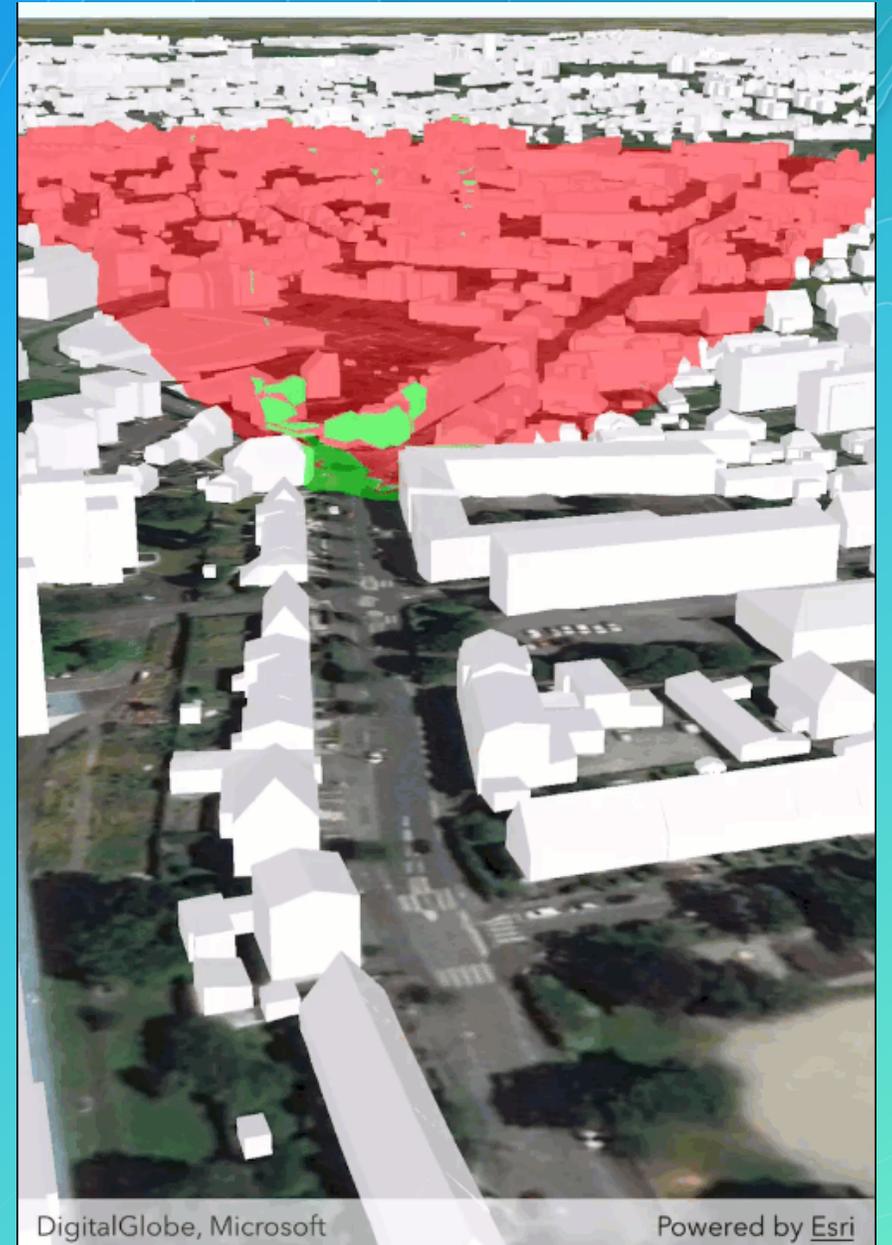
- Use AGSGPXLocationDataSource if you want to test your app against recorded GPX tracks
  - [https://developers.arcgis.com/ios/latest/api-reference/interface\\_a\\_g\\_s\\_g\\_p\\_x\\_location\\_data\\_source.html](https://developers.arcgis.com/ios/latest/api-reference/interface_a_g_s_g_p_x_location_data_source.html)

3 more things...



## #1: 3D scenes and analysis

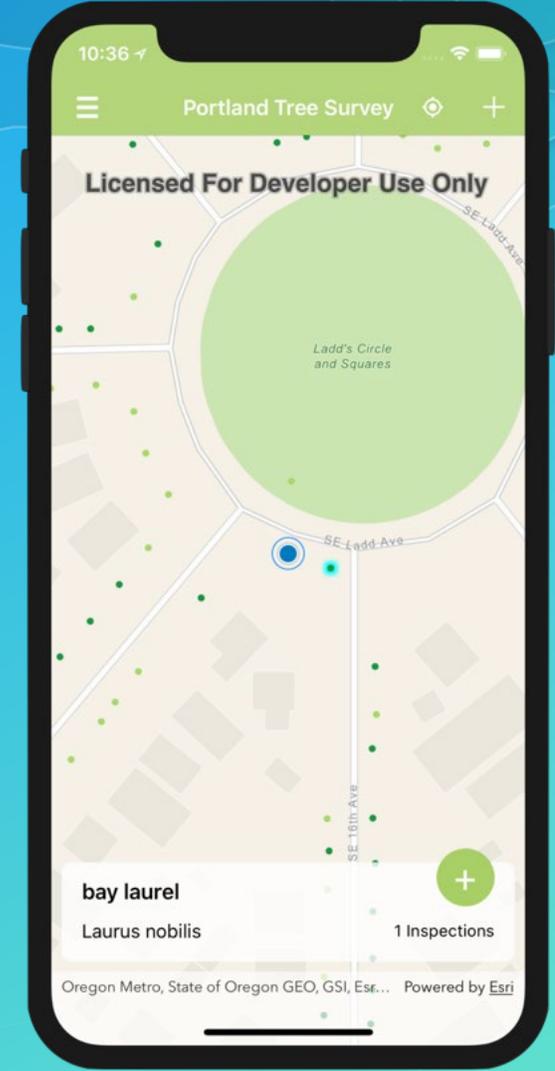
- iOS and macOS have strong 3D support
- Check out the sample apps
- 3D Analysis
  - Line of sight
  - Viewshed
  - GPU-based – very slick
  - From a feature or a specified location
- iOS Simulator on Mac is bad for OpenGL
  - 3D apps in the simulator are not good



## #2: Example Apps

- More than just samples
- Best practices for building real-world apps
- Use as the foundation for your app
- Or just steal what you want
- <https://developers.arcgis.com/example-apps/data-collection-ios/>
- <https://github.com/Esri/data-collection-ios>

## #2.5: Toolkits



## #3: Test in the real world

- Test with real people
- Test on actual devices
- Test in the field with real network conditions

# Summary

- Resources at [developers.arcgis.com](https://developers.arcgis.com)
- Core Workflows
  - Map and MapView
  - Display features and graphics
  - Geocoding & Routing (Task Pattern)
  - Location Display
  - MapView interaction
  - Geometry Builders
  - Callouts

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