

Guided Exercise

Build Native Apps Using AppStudio for ArcGIS

Section 5 Exercise 1

08/2017



Build Native Apps Using AppStudio for ArcGIS

Time to complete

Approximately 50-60 minutes.

Introduction

In Chris's lecture, you learned that native apps are created for a specific platform and installed directly onto a device. With AppStudio for ArcGIS, you can convert your web maps into beautiful, consumer-friendly mobile apps (for Android, iOS, Windows, Mac OS X, and Linux) and publish them to popular app stores, using your own brand and without touching a piece of code.

There are two licensing models for AppStudio: Basic and Standard. AppStudio Basic is free and allows you to build apps from templates that you can then publish to the Apple and Google app stores. AppStudio Standard builds on this functionality by allowing you to create custom apps, but it requires a yearly subscription. In this exercise, you will use AppStudio Basic to create your native apps.

In this exercise, you will build two native apps using AppStudio for ArcGIS:

- A field collection app
- A place-based photo tour

First, you will create a bike-parking collection app using the Quick Report template. This template allows users to capture the location of a feature, record information about it, and even attach a photo or video taken with a mobile device. All observations are submitted to an online service where you can access them through other web or mobile apps.

Second, you will create a virtual tour of Palm Springs, California, using the Map Tour template. This template uses a Story Map Tour web app, similar to the one you built in the guided exercise for Section 3, to create a place-based photo tour in a native app.

In this exercise, you will not actually publish your apps to an app store because it would require you to sign the apps and then receive verification from Apple or Google. Signing your app basically lets users know who created the app and that that person is trusted by the app's distributor (Apple or Google, in most cases). For now, if you want to publish your apps after completing the exercise, you'll need to sign on your own. In the future, Esri will handle the signing and publishing process for the apps that you create with AppStudio.

Let's Get Started!

Note: The mobile apps you create in this exercise are meant to be viewed on your iOS or Android devices. If you don't have an iOS or Android device, you can still create your apps and complete the exercise, but you won't be able to view the mobile versions of the apps you create.

To access your apps on your mobile device (iOS or Android) without publishing them to the Apple or Google store, you need to [download the AppStudio Player for ArcGIS app on your mobile device](#).

Step 1: Download AppStudio Player

- a Depending on your device, open the Apple app store or Google Play store.
- b Search for **AppStudio Player for ArcGIS**.
- c Download and install the app.

Now that you have AppStudio Player on your iOS or Android device, you will create your apps.

Part I: Use the Quick Report template to create a field collection app

[First, you will create the bike-parking collection app.](#)

Step 2: Download assets for this exercise

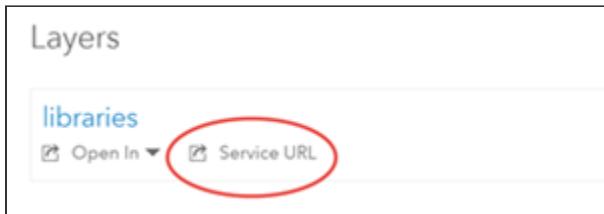
You will need to download the assets for your app before you begin.

- a Download and unzip the contents of the [Exercise5BikeParking zip file](#).
- b Move the Exercise5_BikeParking folder to an easily accessible location on your computer.

Step 3: Publish a feature layer from an existing feature service

Each Quick Report app you create [requires a feature service with at least one point layer](#), which is used to show submitted observations.

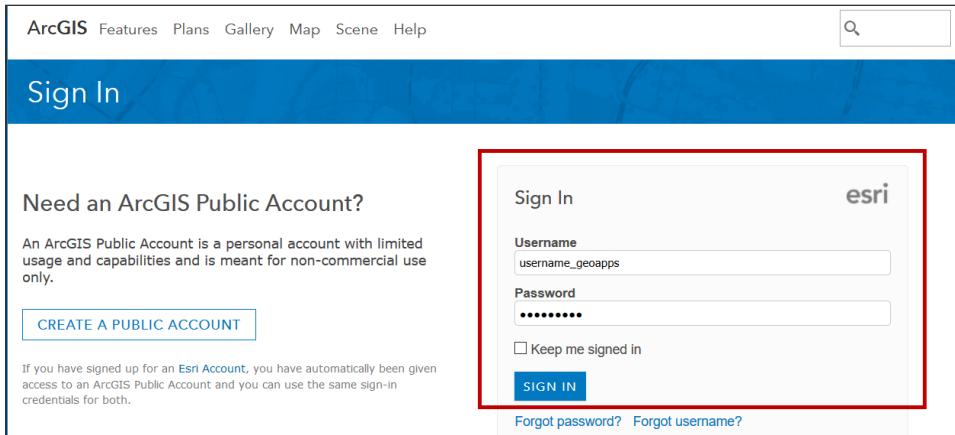
Note: Every **hosted feature layer you publish in ArcGIS Online** has an underlying **feature service in the cloud**. Feature layers store the configuration of a particular data source and determine how data is drawn in a web map or app. A feature service is the data itself. Every hosted feature layer has a **feature service with a REST endpoint** which can be accessed from its Item Details page.



Below, you will use the **REST endpoint** of an existing public-facing feature service to publish a hosted feature layer. When you create a new **hosted feature layer in your ArcGIS Online account** like in the workflow below, a new feature service is published behind the scenes, allowing you to collect your own set of data.

- a Browse to arcgis.com and sign in to ArcGIS Online using the ArcGIS Online credentials explained at the start of this course.

Note: The Section 1 Exercise 1 PDF explains how to determine your ArcGIS Online credentials (username and password) for this course. If you have trouble signing in, email gistraining@esri.com for assistance.



ArcGIS Features Plans Gallery Map Scene Help

Sign In

Need an ArcGIS Public Account?

An ArcGIS Public Account is a personal account with limited usage and capabilities and is meant for non-commercial use only.

[CREATE A PUBLIC ACCOUNT](#)

If you have signed up for an [Esri Account](#), you have automatically been given access to an ArcGIS Public Account and you can use the same sign-in credentials for both.

Sign In esri

Username
username_geoplaces

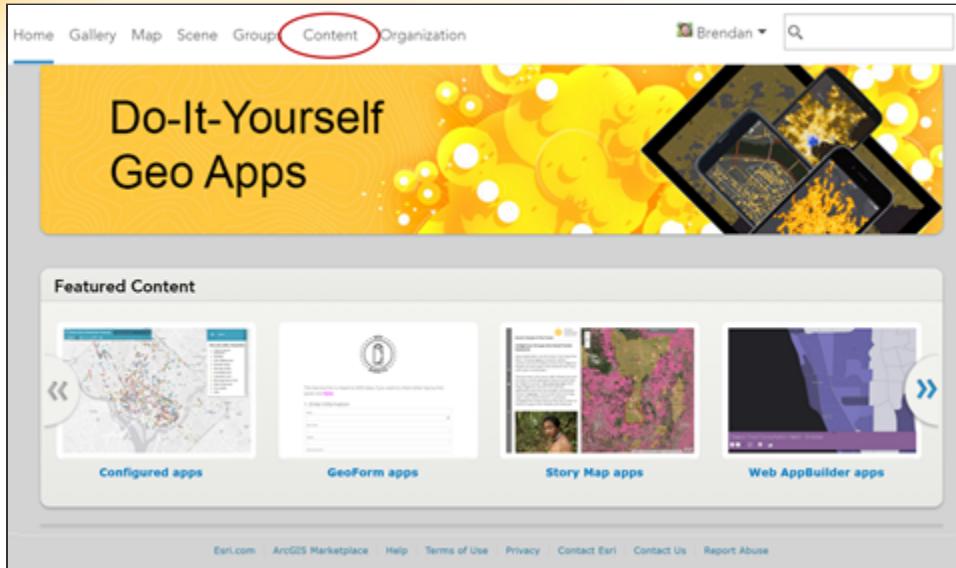
Password

Keep me signed in

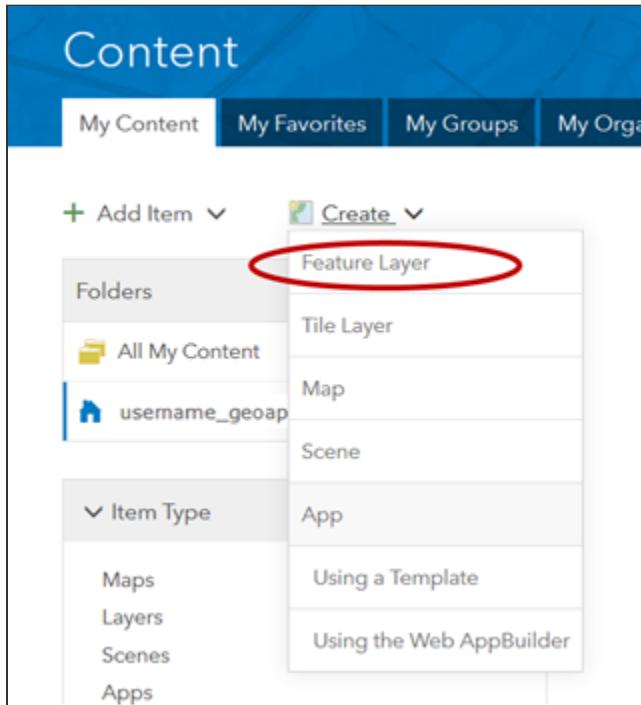
[SIGN IN](#)

[Forgot password?](#) [Forgot username?](#)

- b Click Content.



- c On the My Content tab, click Create and, from the drop-down list, select Feature Layer.



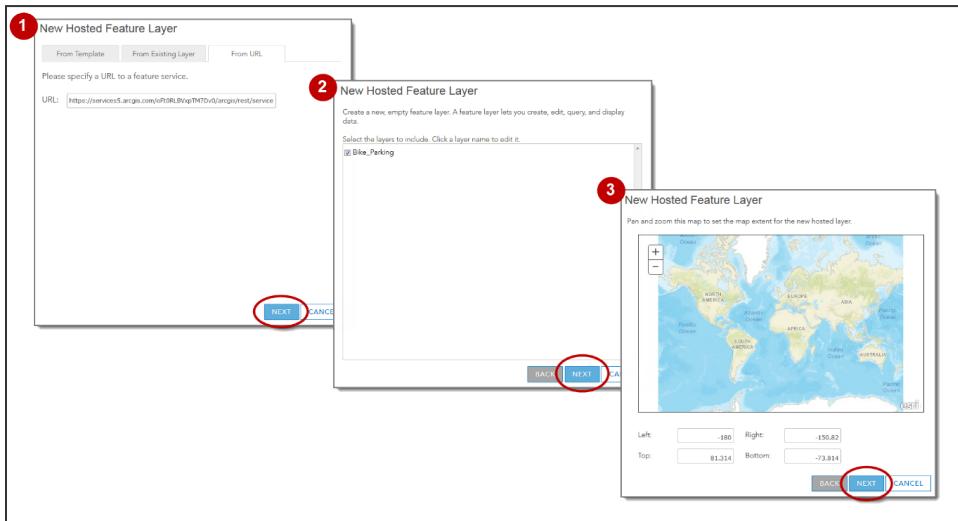
- d In the New Hosted Feature Layer dialog box, select the From URL tab, and then copy and paste the following text into the URL field:

https://services5.arcgis.com/oFt0RLBVxpTM7Dv0/arcgis/rest/services/Bike_Parking/FeatureServer/0

Note: There should be no spaces in the URL.



- e Click Next three times to accept the layer and map extent defaults.



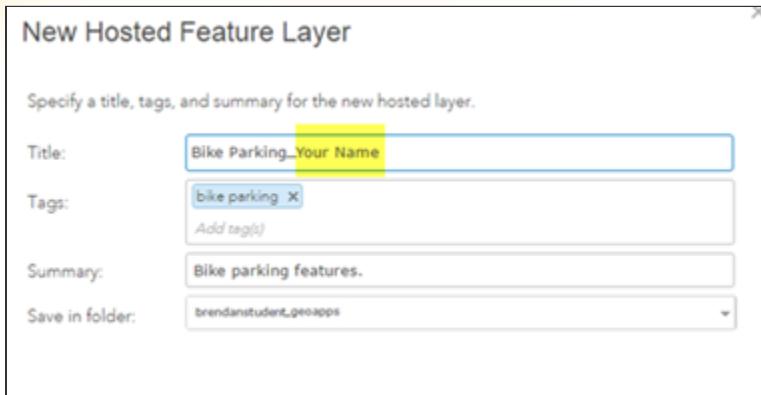
- f In the New Hosted Feature Layer dialog box, enter the following information to specify details for the feature layer:

- For Title, type **Bike Parking**. Add your first and last names so the feature layer has a unique name.

Note: Because there are many other students creating a similar feature layer, adding your first and last name will ensure that yours is unique.

- For Tags, type **bike parking** and press Tab.
- For Summary, type **Bike parking features**.
- For Save In Folder, accept the default.

Note: The completed dialog box should look similar to the image below.



- g Click Done to close the dialog box.

Once the hosted feature layer is created, the Item Details page displays.

You can allow users to attach images and other files to individual features in a layer in a hosted feature layer. This is useful, as it allows users of your app to associate photos to specific features.

The attachments option is a toggle link. When attachments are enabled, the link reads Disable Attachments. When attachments are not enabled, the link reads Enable Attachments.

- h On the Item Details page, in the Layers section, confirm that the link below the layer name reads Disable Attachments, as shown below.

Feature Layer (hosted)

Add to Favorites

Description

Add an in-depth description of the item.

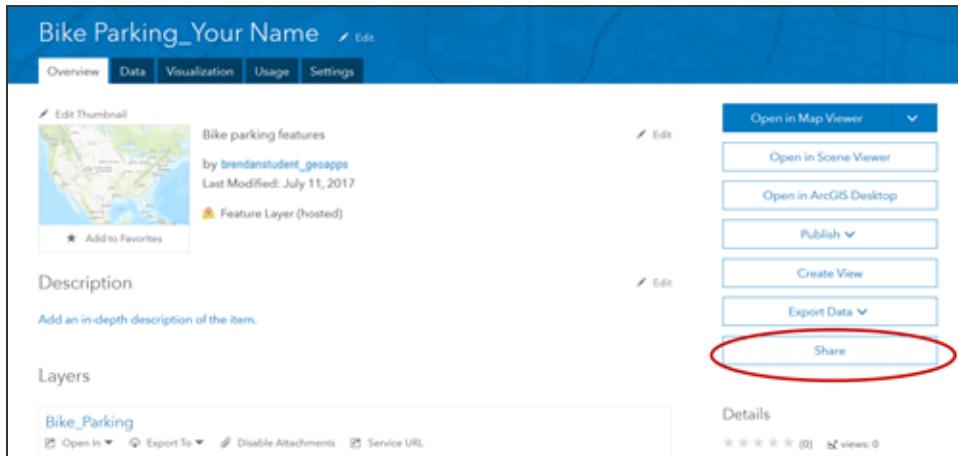
Layers

Bike_Parking

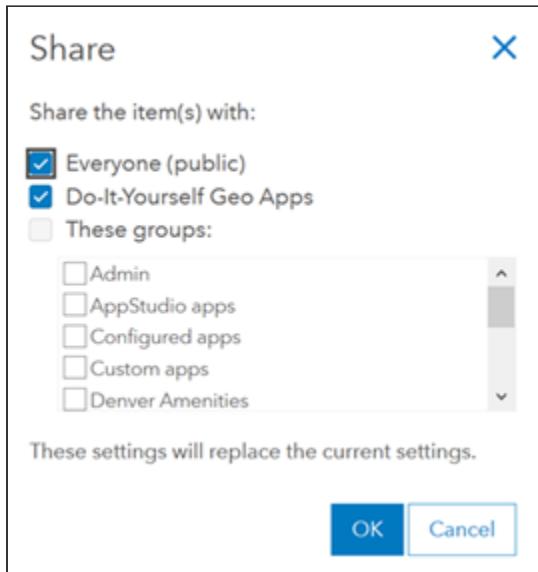
Open In ▾ Export To ▾ **Disable Attachments** Service URL

Now users can capture and attach photos of their field observations.

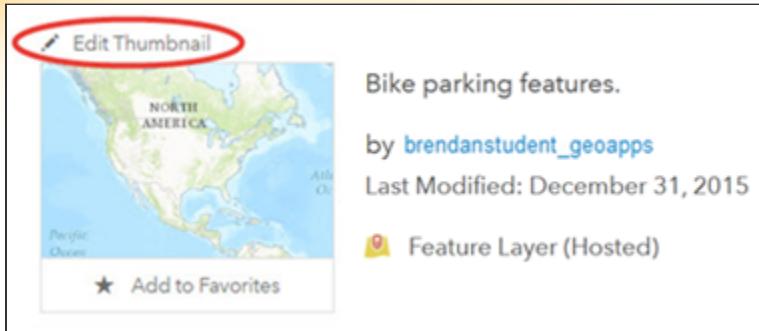
- i Click Share.



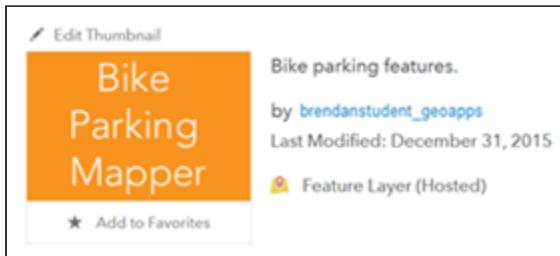
- j Select the Everyone (Public) check box and click OK.



In AppStudio Basic, only public feature services can be used to create native apps, so you must share the service with everyone.

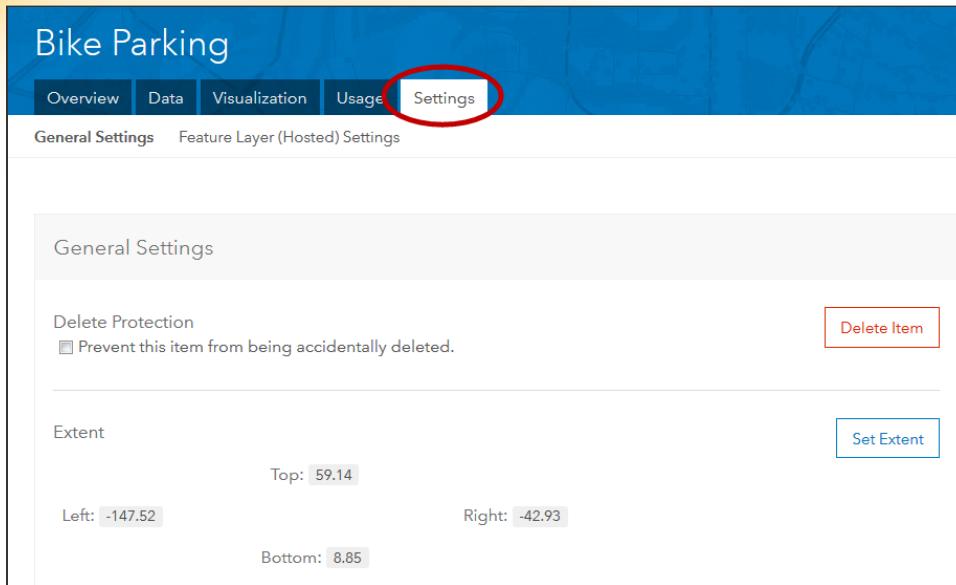


- k** Click Edit Thumbnail.
- l** Browse to the Exercise5_BikeParking folder, and select the bike_thumbnail file.
- m** Click Open, and then OK to upload the thumbnail.



Providing a nice thumbnail for your ArcGIS Online item is always a good idea because it helps you and others sort through content quickly.

- n** Click the Settings tab.



Bike Parking

Overview Data Visualization Usage Settings

General Settings Feature Layer (Hosted) Settings

General Settings

Delete Protection Prevent this item from being accidentally deleted. Delete Item

Extent

Top: 59.14 Set Extent

Left: -147.52 Right: -42.93

Bottom: 8.85

- ➊ Scroll down, enable editing, and ensure the Feature Layer Settings are configured as follows:
 - For Editing, ensure Enable Editing is selected.
 - For What Kind of Editing is Allowed, ensure Add, Update, and Delete Features is selected.
 - For What Features Can Editors See, ensure Editors Can See All Features is selected.
 - For What Features Can Editors Edit, ensure Editors Can Edit All Features is selected.
 - For What Access Do Anonymous Editors (Not Signed In) Have, ensure The Same As Signed In Editors is selected.

Feature Layer (hosted) Settings

Editing

Enable editing

Keep track of who created and last updated features.

- Who can edit features?

Share the layer to specific groups of people, the organization or publicly via the Share button on the Overview tab. This layer is not shared.

- What kind of editing is allowed?

- Add, update, and delete features
- Only update feature attributes
- Only add new features

- What features can editors see?

- Editors can see all features
- Editors can only see their own features (requires tracking)
- Editors can't see any features, even those they add

- What features can editors edit?

- Editors can edit all features
- Editors can only edit their own features (requires tracking)

- What access do anonymous editors (not signed in) have?

- The same as signed in editors
- Only add new features, if allowed above (requires tracking)

- Who can manage edits?

- You
- Administrators
- Data curators with the appropriate privileges

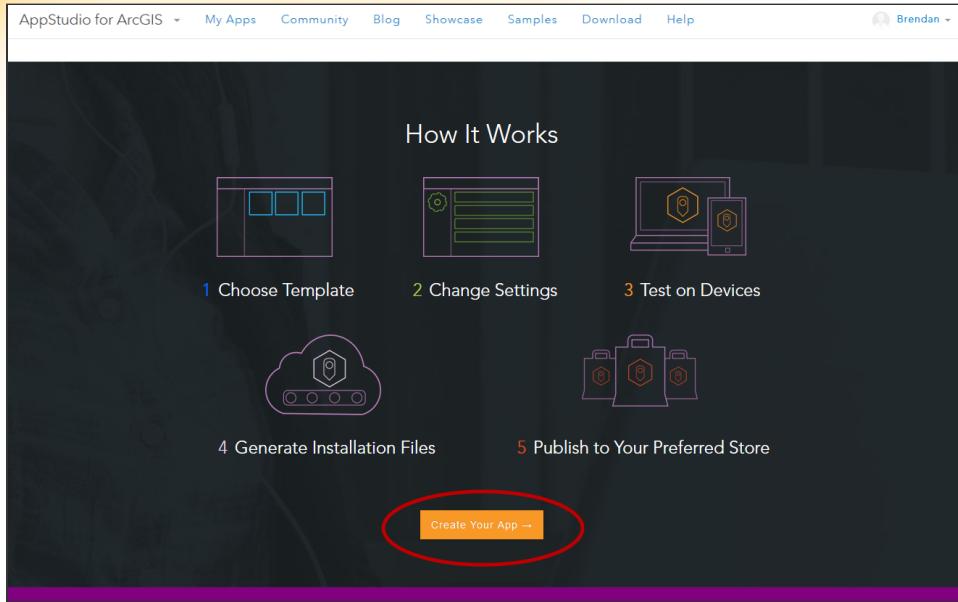
- p** If any changes are made, click Save. Otherwise, **continue to the next step**.

Step 4: Incorporate a service into an app

Your service is now ready to be incorporated into a native bike-parking app.

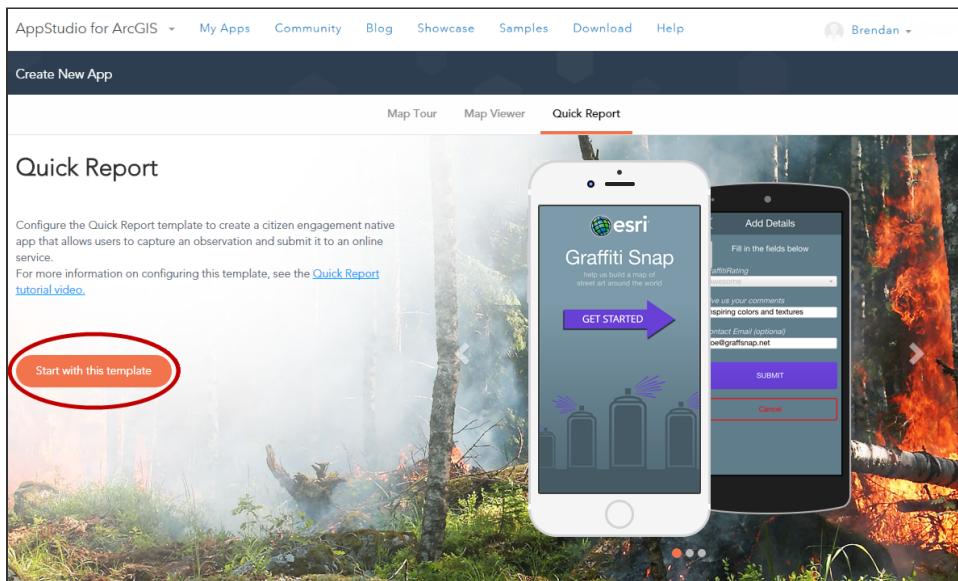
- a** Browse to <https://appstudio.arcgis.com/>, scroll down, and click Create Your App.

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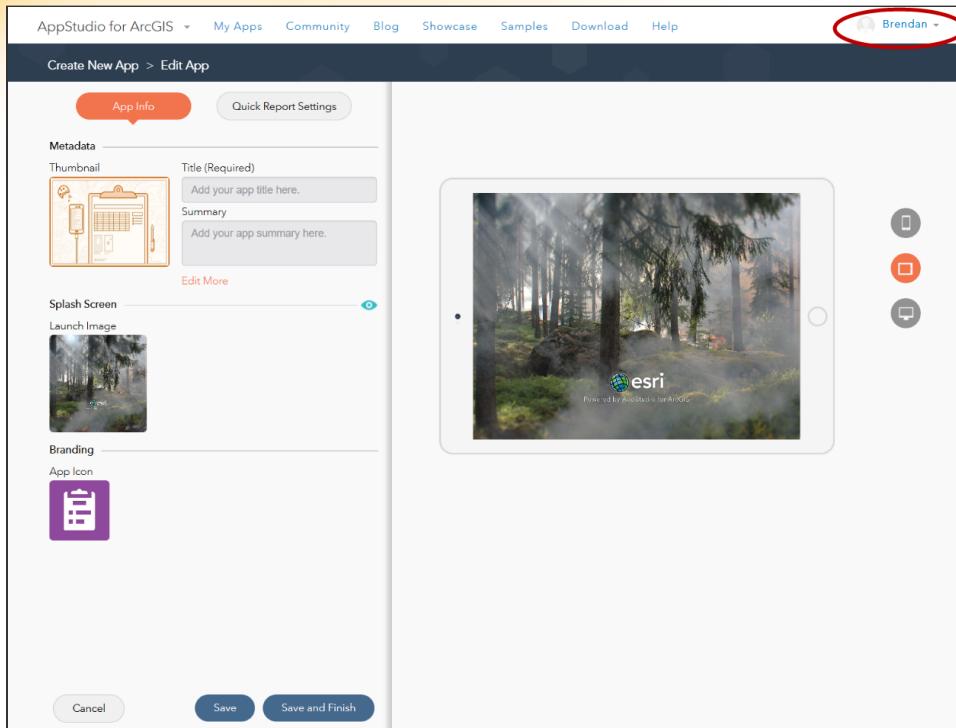


- b) Scroll down to the Quick Report section, and click Start With This Template.

Hint: You can also click Quick Report at the top of the page.



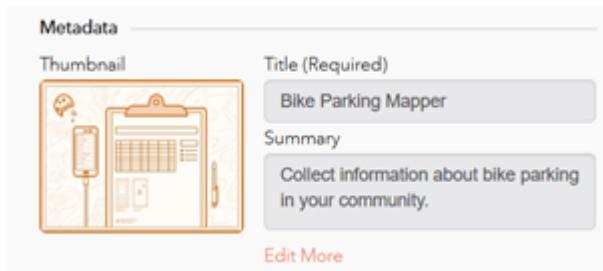
*Note: If you're not signed in with your **ArcGIS Online account** already, sign in using your credentials.*



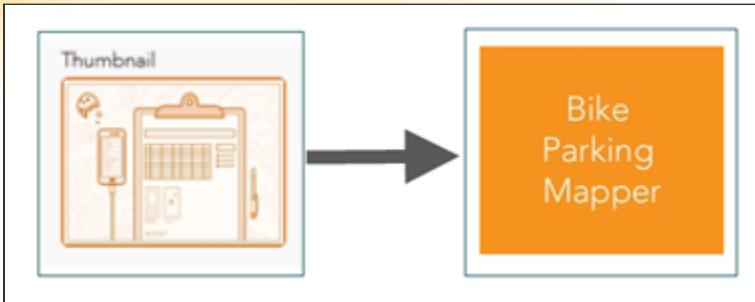
- c Verify that your ArcGIS Online account user name appears in the upper-right corner.
- d Type the following information in the appropriate fields:

- Title: **Bike Parking Mapper [your name]**
- Summary: **Collect information about bike parking in your community.**

Note: Add your first and last name to the title of your app to ensure that it is unique.



- e Click the Thumbnail icon and open the bike_thumbnail file (from the Exercise5_BikeParking folder).



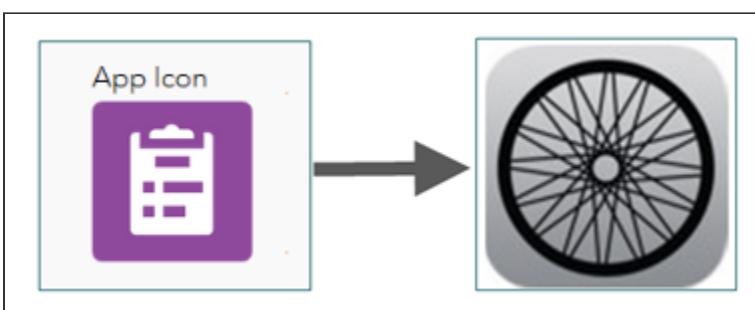
The thumbnail icon will now display in ArcGIS Online and on your mobile device in AppStudio Player for ArcGIS.

- f Click the Launch Image icon and open the bike_background file (also from the Exercise5_BikeParkingfolder).



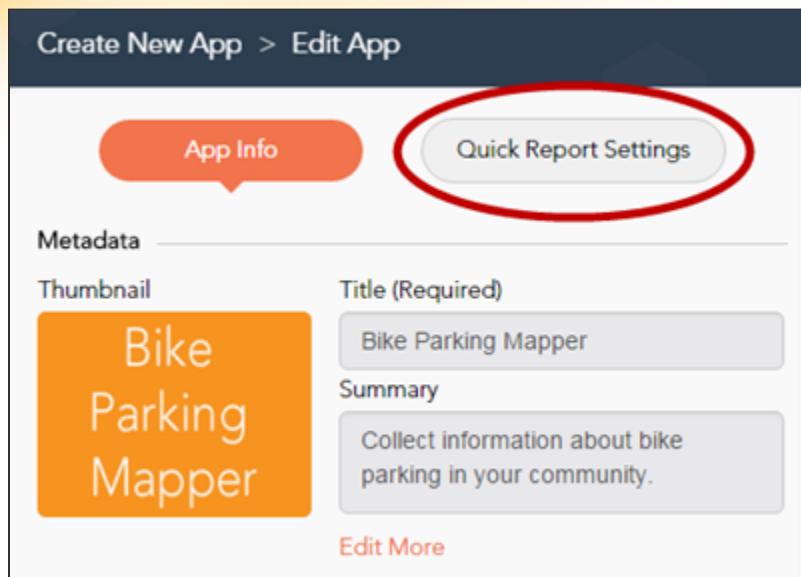
The launch image is the image that displays when your app is loading on a device.

- g Click the App Icon icon and open the bike_icon file (also from the Exercise5_BikeParking folder).

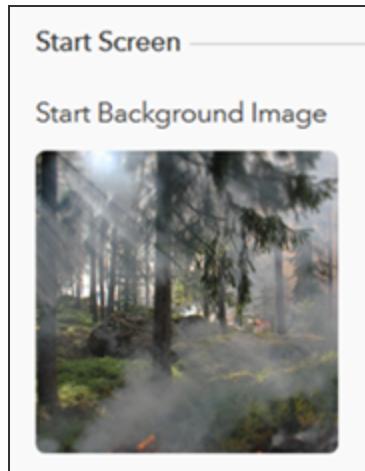


The app icon is what displays on your mobile device when you publish your app to the Apple or Google app store.

- h Click Quick Report Settings.

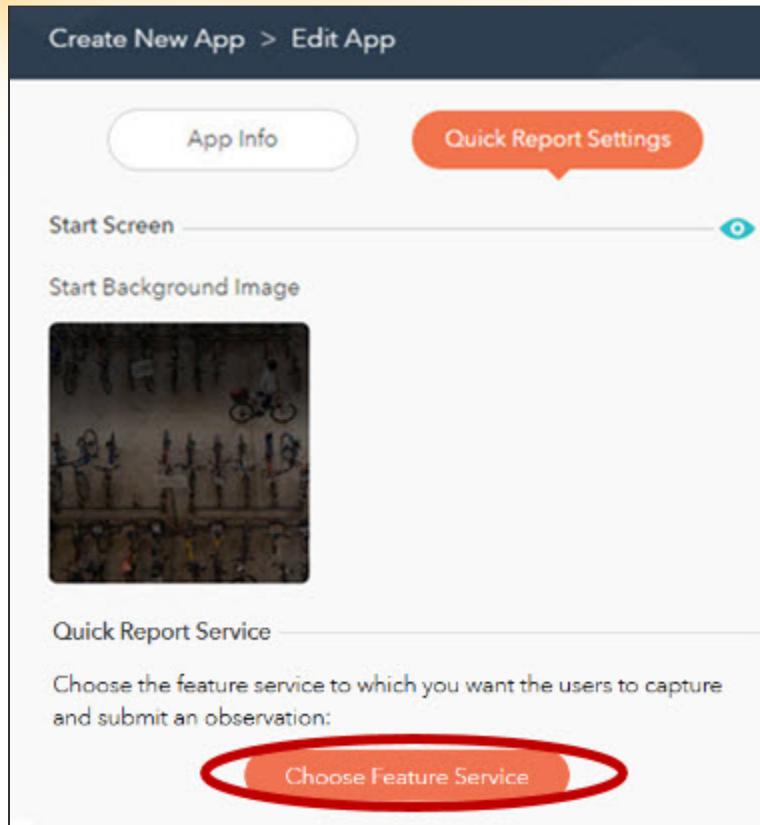


In the Start Screen section, click the Start Background Image icon and open the bike_background file.



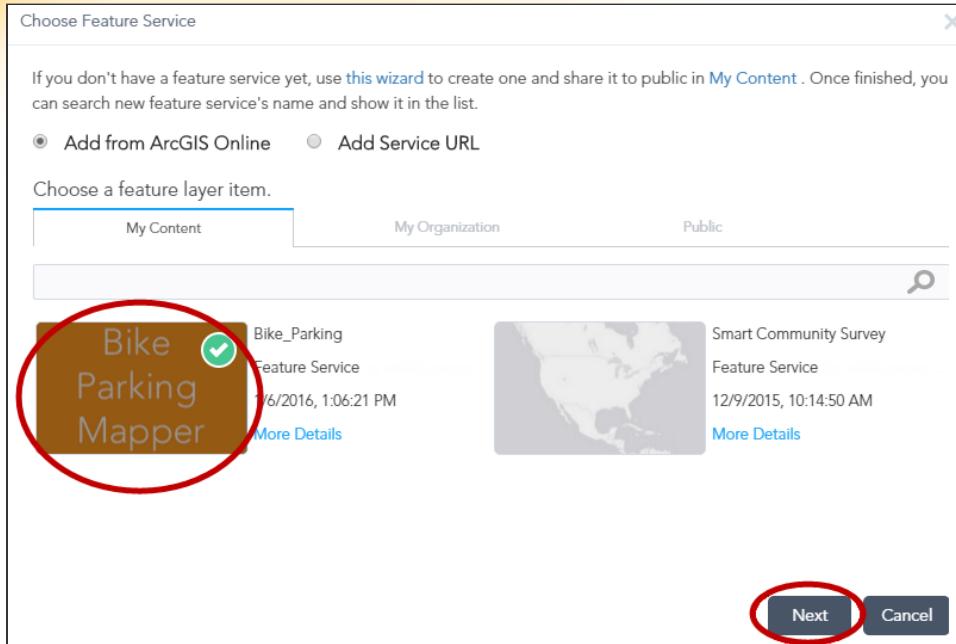
The Start Background image displays when your app has loaded. The user initializes the app by clicking the New Report button, and the background image displays throughout the app.

- i Next, click Choose Feature Service.

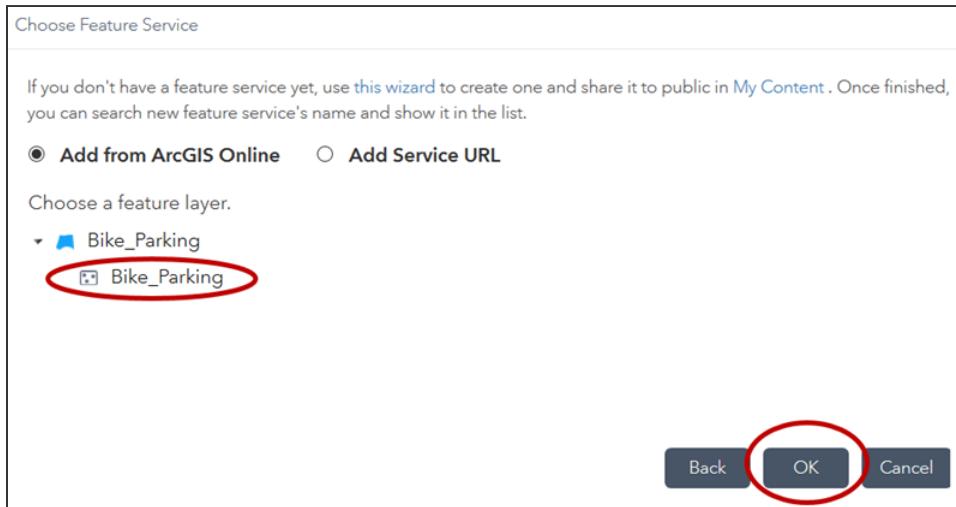


Remember the feature service you created earlier? You are going to select it so that users can capture and submit observations about bike-parking facilities in their communities.

- j Click the Bike_Parking feature service, and then click Next.

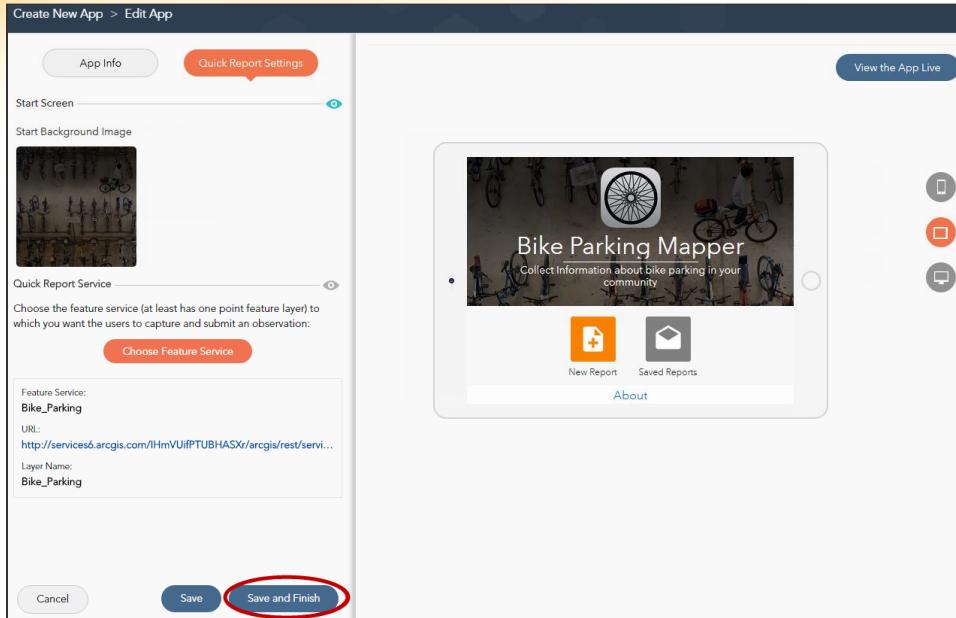


- k Expand the Bike_Parking feature layer item, select the **Bike_Parking** feature layer, and then click OK.



- ! Click Save And Finish.

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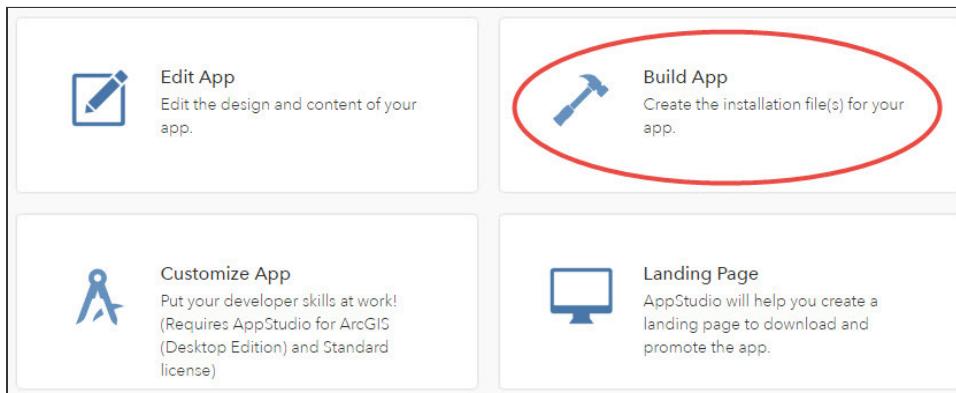


Note: **Do NOT share this app with any groups, Do-It-Yourself Geo Apps, or Everyone (public).**

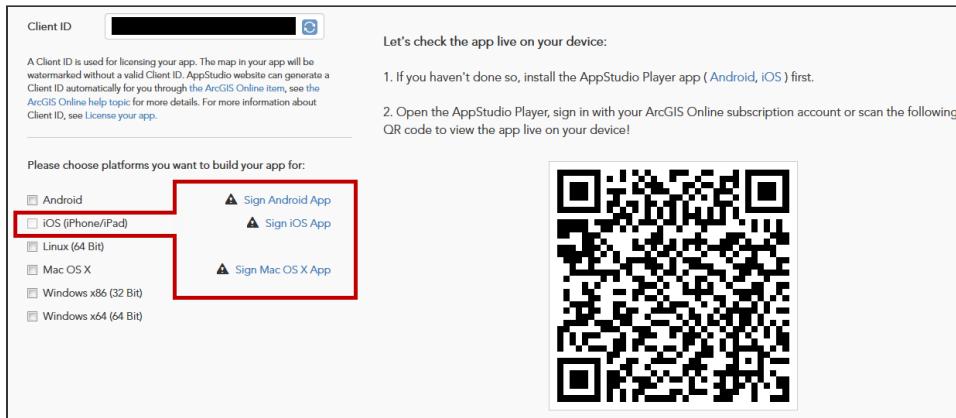
Step 5: Explore options for creating installation files

Now that your app is saved, you have the option to create installation files for Android, Linux, Mac OS X, or Windows. Remember, for this course, you will not sign or publish your app. It is useful, though, to explore the available options, which you would need if you were going to sign and publish your app to an app store.

- Click Build App to explore the installation-file options.



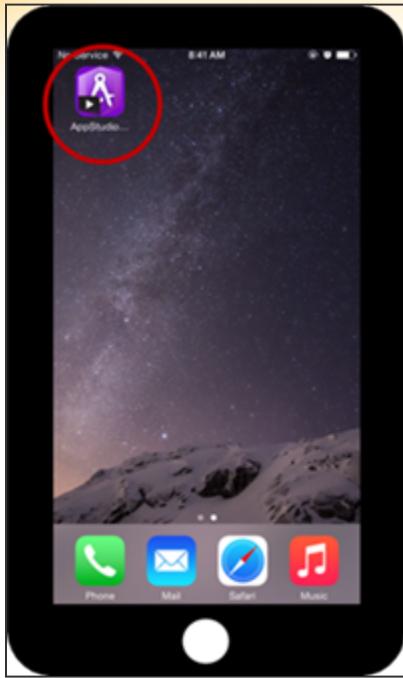
As indicated by the warning icon, the only way to build your app for iOS is to sign it. However, you can build your app for Android and load it onto your device without signing it, but you cannot publish it to the Google Play store. Similarly, you can build your app for Mac OS X, but without signing it, users with newer operating systems that include Gatekeeper will not be able to open it on their devices.



In this part of the exercise, you will view the app on your iOS or Android device using the AppStudio Player.

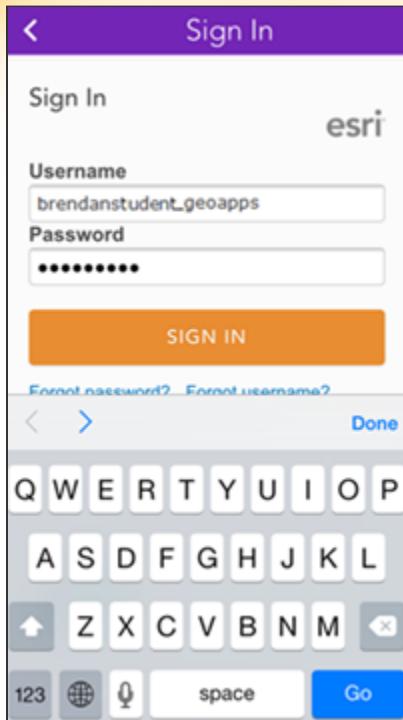
Step 6: View the app using the AppStudio Player

Previously, you downloaded AppStudio Player onto your device. Now, you will use it to view the app you just created.

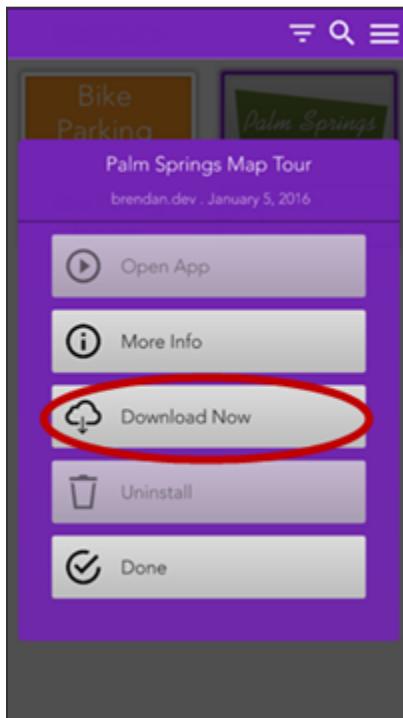


Note: The following screen shots illustrate these steps for iOS devices. The workflow is the same for Android devices, but the screen shots may differ slightly.

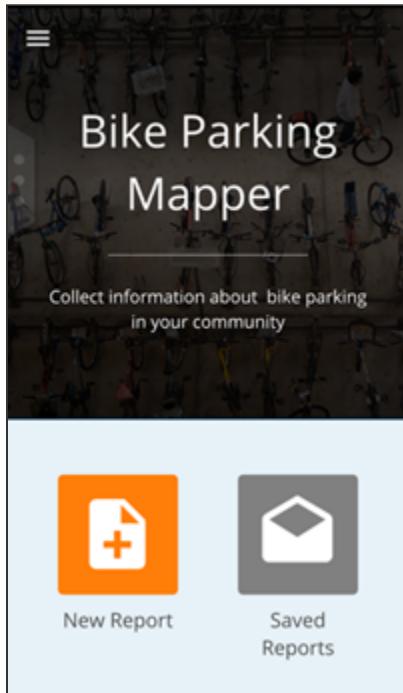
- a Open AppStudio Player.
- b Sign in using your [ArcGIS Online account credentials](#).



- c Select the Bike Parking app, and then tap Download Now.

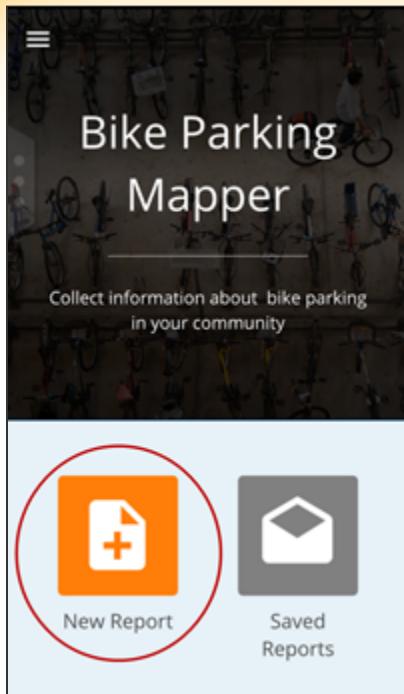


- d After the app has downloaded, click OK. Select the app in the gallery again, and then tap Open App.



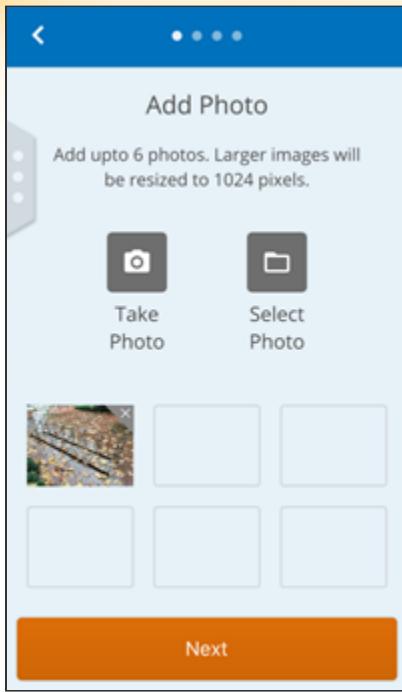
Next, you will test your app by recording an observation. If you are not near any bike parking facilities, don't worry; you can record an imaginary feature.

- e Tap New Report.

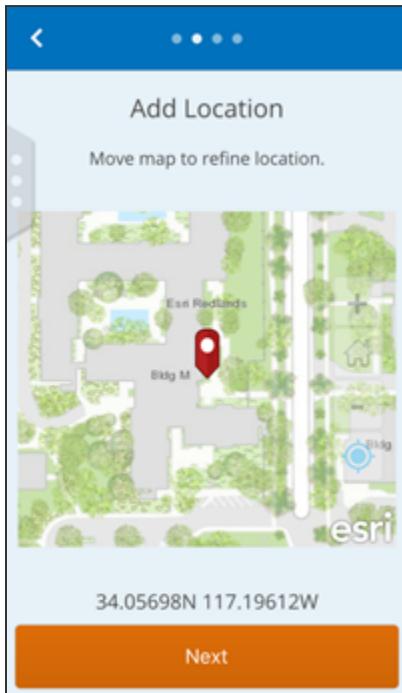


If you'd like, you can add a photo to show the bike parking feature associated with your observation (instructions below). If you prefer not to, you can tap Skip.

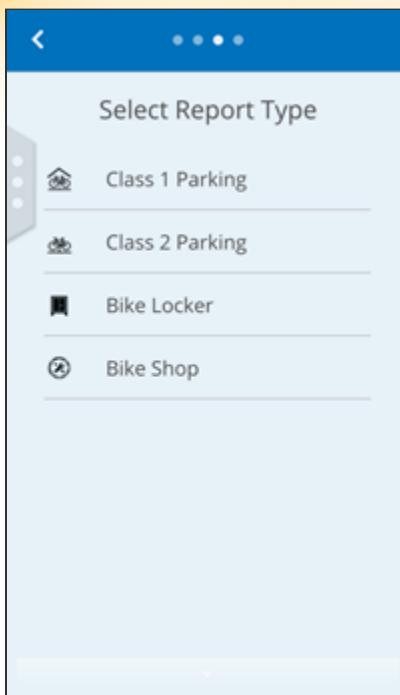
- f To add an image, tap Take Photo or Select Photo. After you have decided on the photo that you would like to use, tap Next.



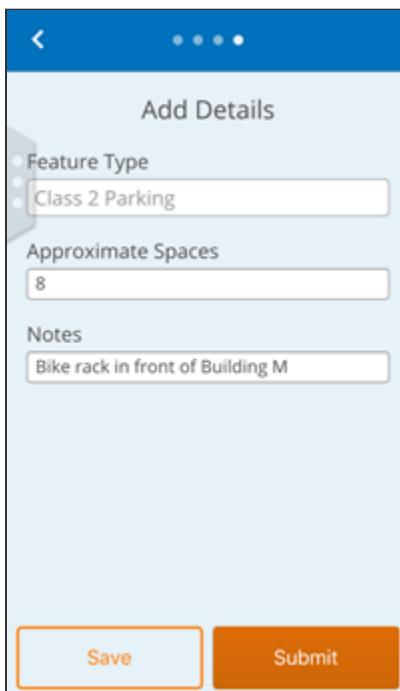
- g On the Add Location screen, pan and zoom to the location of your observation, and then tap Next.



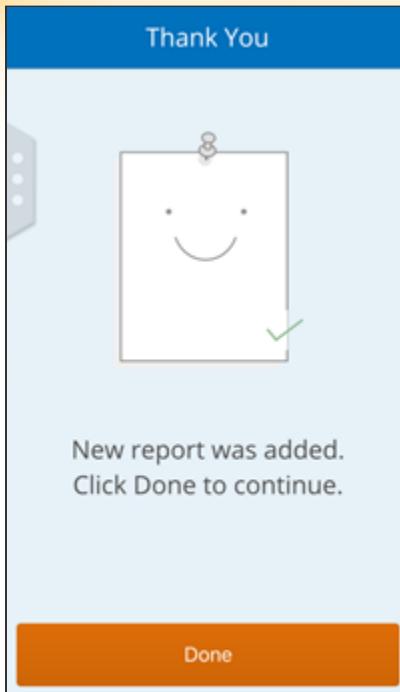
- h Choose the type of feature you would like to add.



- i Click Next and complete the details form, then tap Submit.



If your feature was added successfully, you will see a confirmation.



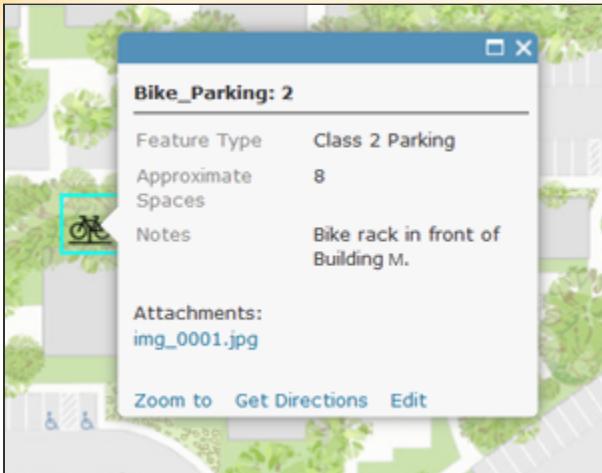
- j Tap Done.

Congratulations, you just created and used a native app to collect an observation of bike parking facilities in your community!

Now, if you add your Bike_Parking feature service to a web map in ArcGIS Online, you will be able to see the observations you collect, and even publish a web or mobile app using that web map!

Note: Refer to the Section 2 guided exercise to learn more about creating and publishing apps from feature services.

The following image gives you an idea of what the observation that you collected would look like in a web map.



Now, let's shift gears and use a web app to create a place-based photo tour in a native app that will run on your chosen device.

Part II: Use the Map Tour template to create a place-based photo tour

You will use the Map Tour template to create an app that showcases points of interest in Palm Springs, California. First, you will need a few files to help you along the way.

Step 7: Download assets for this exercise

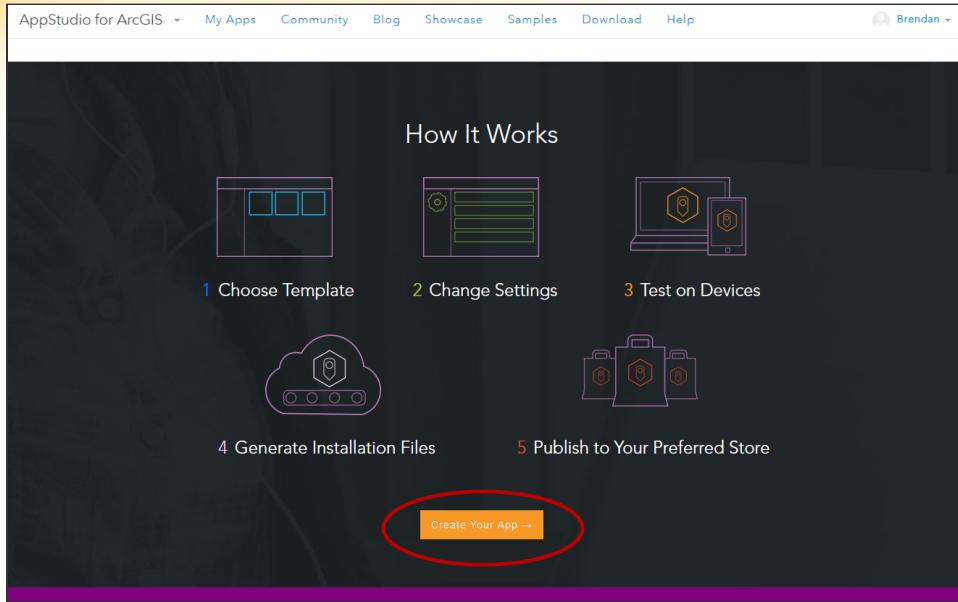
You will need to download the assets for your app before you begin.

- a Download and unzip the contents of the [Exercise5PalmSprings zip file](#).
- b Move the Exercise5_PalmSprings folder to an easily accessible location on your computer.

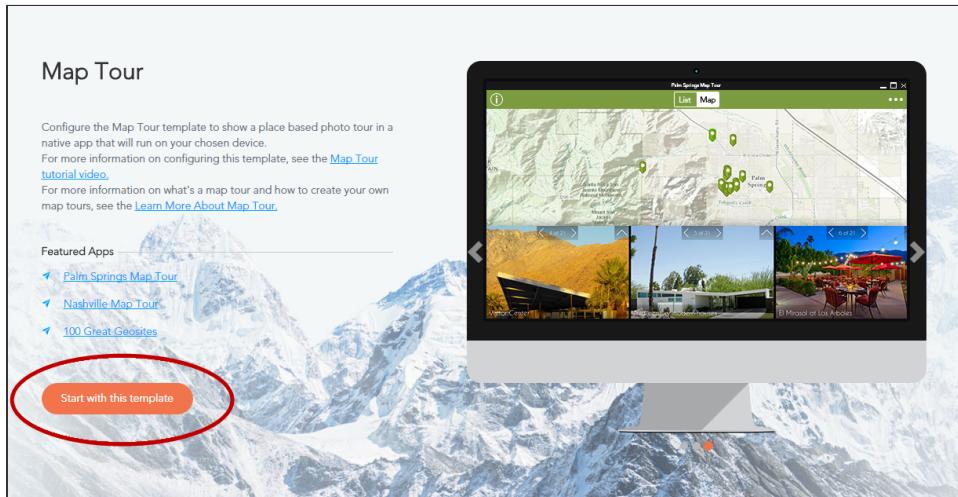
Step 8: Create a map tour app

- a In a web browser, go to appstudio.arcgis.com, scroll down, and click Create Your App.

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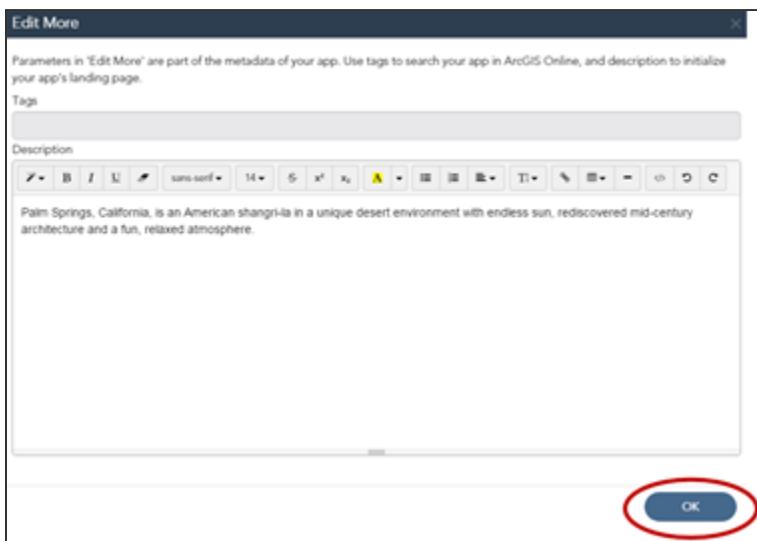
- b In the **Map Tour** section, click Start With This Template.



- c In the Exercise5_PalmSprings folder you just downloaded, open the Palm_Springs.txt file, copy and paste the title and summary into the app template, and then click Edit More.

The screenshot shows the 'Map Tour Settings' section of the ArcGIS App Tour interface. At the top, there are two buttons: 'App Info' (highlighted in orange) and 'Map Tour Settings'. Below this, the 'Metadata' section is displayed. It includes a 'Thumbnail' image of a mountain range, a 'Title (Required)' field containing 'Palm Springs Map Tour', and a 'Summary' field containing '21 places to go in this desert resort town'. There is also a red 'Edit More' button at the bottom.

- d Copy and paste the description from the Palm_Springs.txt file into the description box, and click OK.



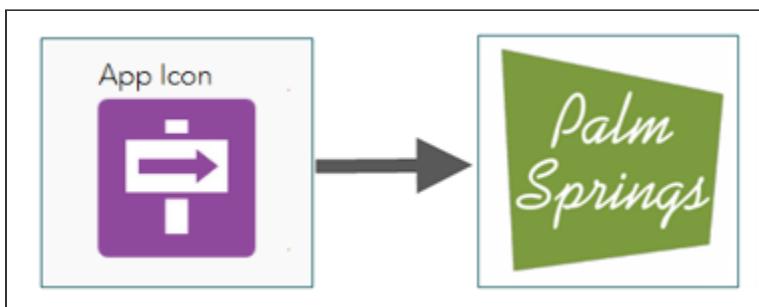
- e Click the Thumbnail icon, browse to the Exercise5_PalmSprings folder, select the MapThumbnail.png file, and click Open.



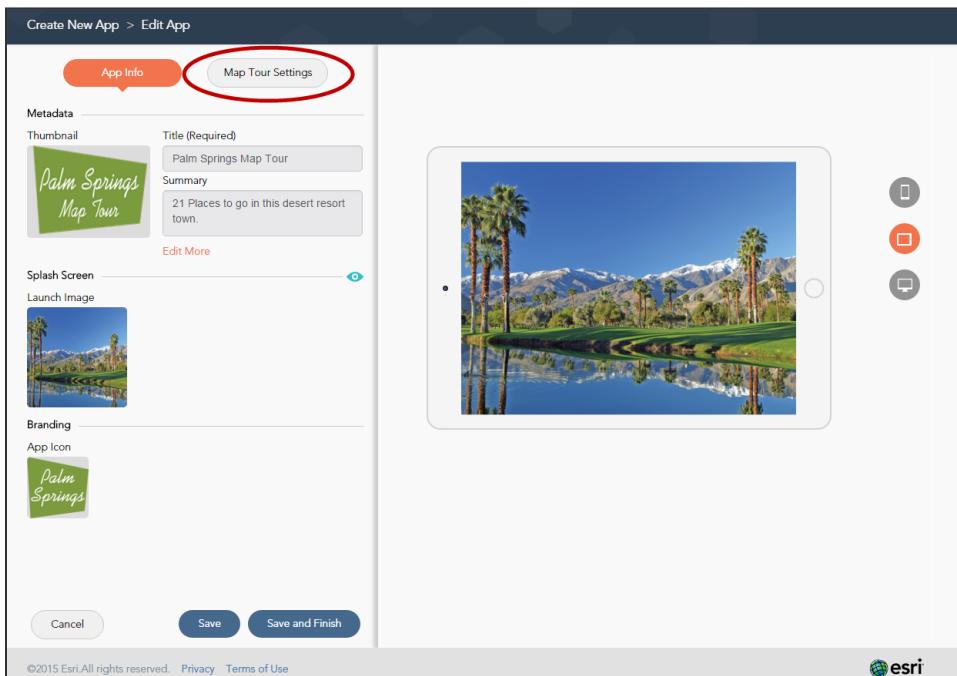
- f Click the Launch Image icon, browse to the Exercise5_PalmSprings folder, select the Intro_Background.jpg file, and click Open.



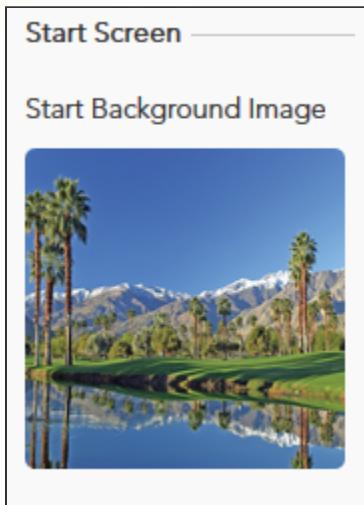
- g Click the App Icon icon and open the PalmSpringsicon file.



- h Click Map Tour Settings.

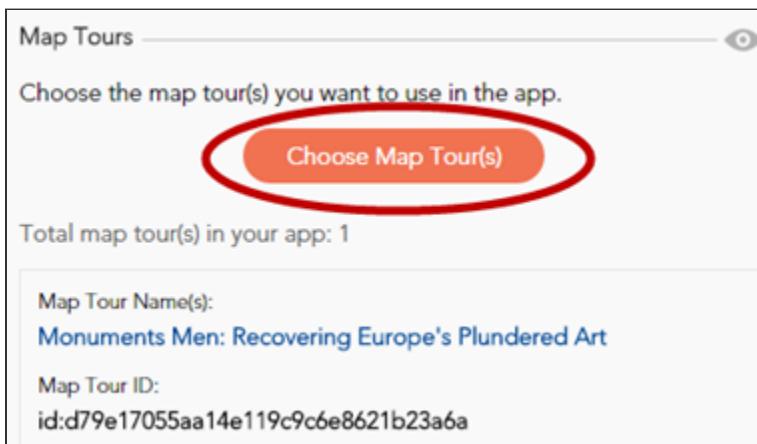


- i Click the Start Background Image icon, browse to the Exercise5_PalmSprings folder, and open the Intro_Background file.



Next, you will select the map tour you want to use in your app.

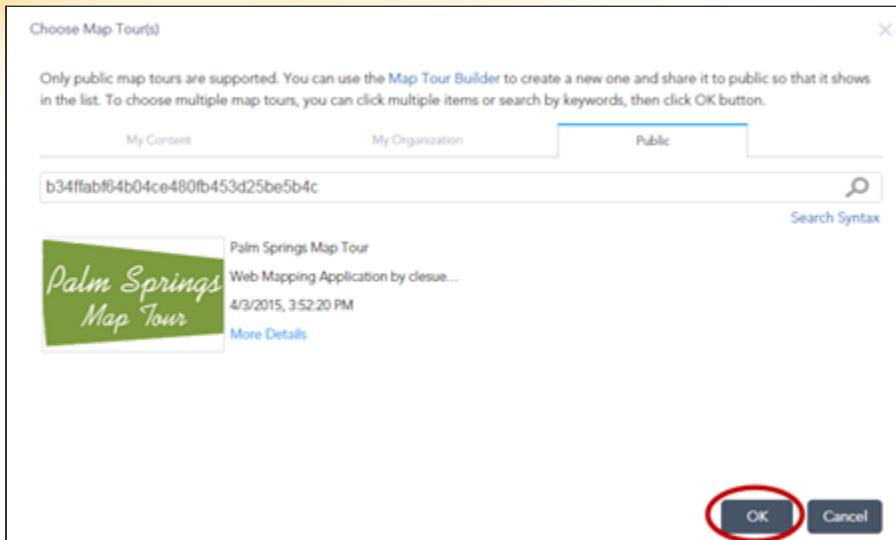
- j Click Choose Map Tour(s).



- k Click the Public tab, **copy the App ID from the Palm_Springs.txt file** and paste it in the search field, and then click the magnifying glass icon.

The App ID is simply a unique identifier used to find and retrieve the app in ArcGIS Online. By copying and pasting the App ID, you are telling AppStudio that the map tour with the ID b34ffabf64b04ce480fb453d25be5b4c **is the app that you want to use to create your native app.**

- l Select Palm Springs Map Tour and click OK.



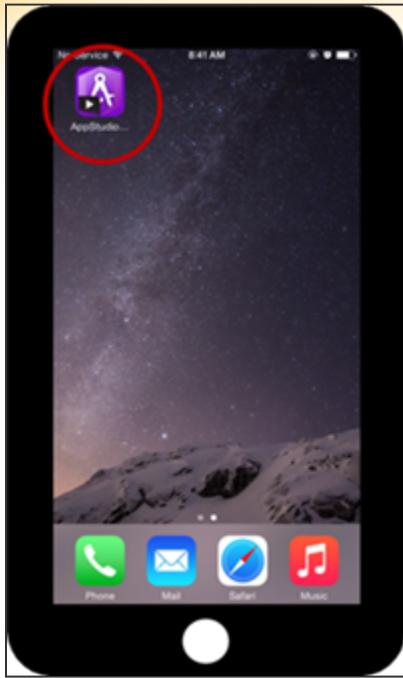
- m Click Save And Finish.

Like before, now that your app is saved, you can create installation files for Android, Linux, Mac OS X, or Windows. **For this exercise, though, you won't sign or publish the app.**

Note: **Do NOT share this app** with any groups, Do-It-Yourself Geo Apps, or Everyone (public).

Step 9: View the map tour app using the AppStudio Player

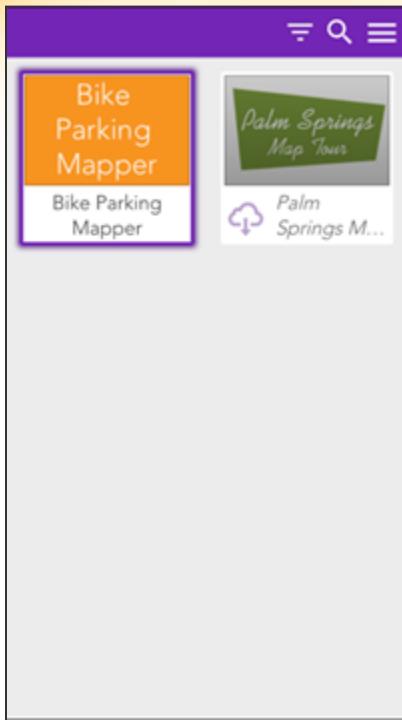
Next, you will view the apps on your iOS or Android device using the AppStudio Player.



Note: The following screen shots illustrate these steps for iOS devices. The workflow is the same for Android devices, but the screen shots may differ slightly.

- a Open AppStudio Player on your device.

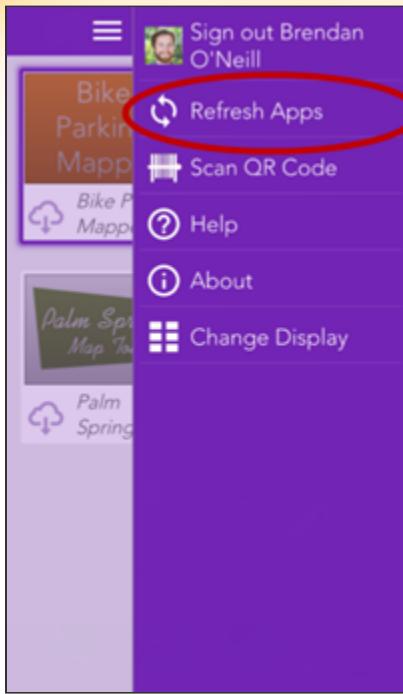
After you sign in with your ArcGIS Online account credentials, you will see that the Palm Springs Map Tour has been added to your list of apps.



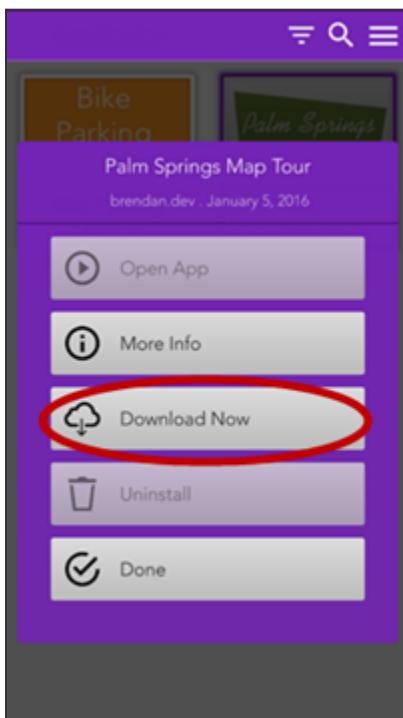
Note: If you do not see the gallery, you may need to tap the button with three dots on the left side of the screen, and then tap the top button with the nine dots.



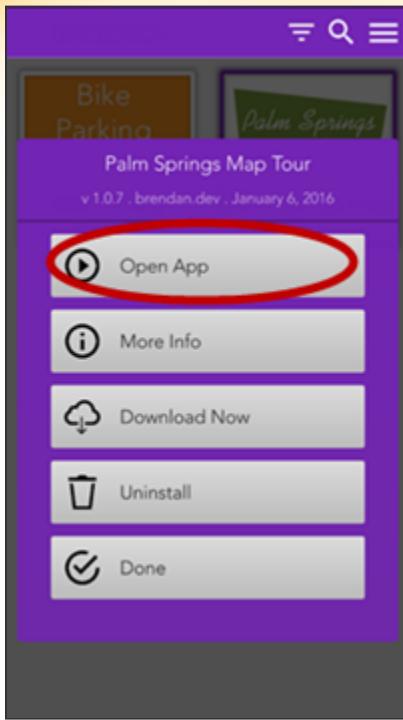
Note: If your app is not in the gallery, click the **Refresh Apps button**.



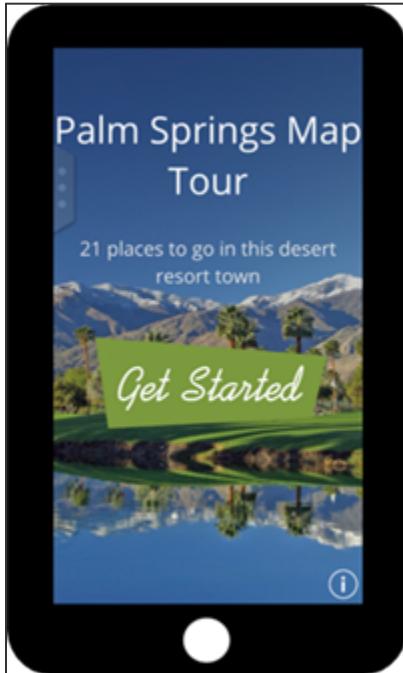
- b Tap the Palm Springs app, and then tap Download Now.



- c After it has downloaded, click OK. Tap the app again, and then tap Open App.



- d Tap Get Started and explore the app.



Congratulations, you just created a native map tour app that is viewable on mobile devices!

Conclusion

In this exercise, you quickly built two cross-platform native apps using AppStudio for ArcGIS configurable app templates and no coding!

The live Palm Springs Map Tour app has already been uploaded to the Apple and Google app stores. If you'd like to see the map tour in action, go to either of the stores, search for Palm Springs Map Tour, download the app, and explore it.