

Exercise 11: Web GIS with ArcGIS Online

In this lab, you will be making a tourist map of Morgantown, WV in the form of an ArcGIS Online web map. These maps are particularly useful because they are easily accessible to the public. Web maps and apps allow users to interact with and explore your data and findings without the need for specialized desktop software or GIS expertise. Users only need a web browser. This lab will walk you through the basics of ArcGIS Online, creating an InstantApp, and generating a Dashboard.

Grading:

This exercise will be graded out of 40 points. The web app generated using Instant Apps will be graded out of 20 points. The Dashboard will also be graded out of 20 points. The following criteria will be considered:

1. Overall design and neatness of the map and app. All components should be professional and polished. Make sure to rename field, file, or layer names to more meaningful names. Make sure all text in the pop-ups and legend are meaningful.
2. Data should be appropriately and effectively symbolized.
3. The data should be correctly imported and presented.
4. The map, form, and apps should function correctly.
5. The exercise directions were followed so that the correct maps and apps were produced.

You must provide your instructor with the URL for your app and dashboard.

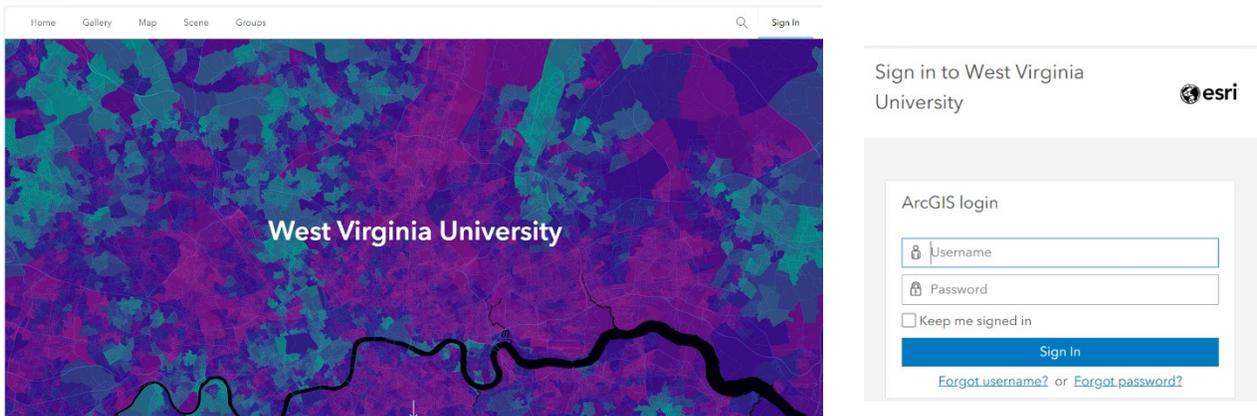
Things that will be covered in this lab:

1. Logging into ArcGIS Online
2. Connecting to data layers
3. Uploading data
4. How to publish from ArcGIS Pro
5. Symbology changes
6. Pop-up configuration
7. Building tables/forms
8. Generating an Instant App
9. Generating a Dashboard

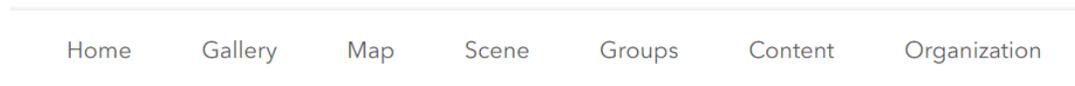
Part 1: Getting Started with ArcGIS Online

Most organizations have their own URL to access their ArcGIS Online server. WVU's is: [West Virginia University \(arcgis.com\)](https://www.arcgis.com)

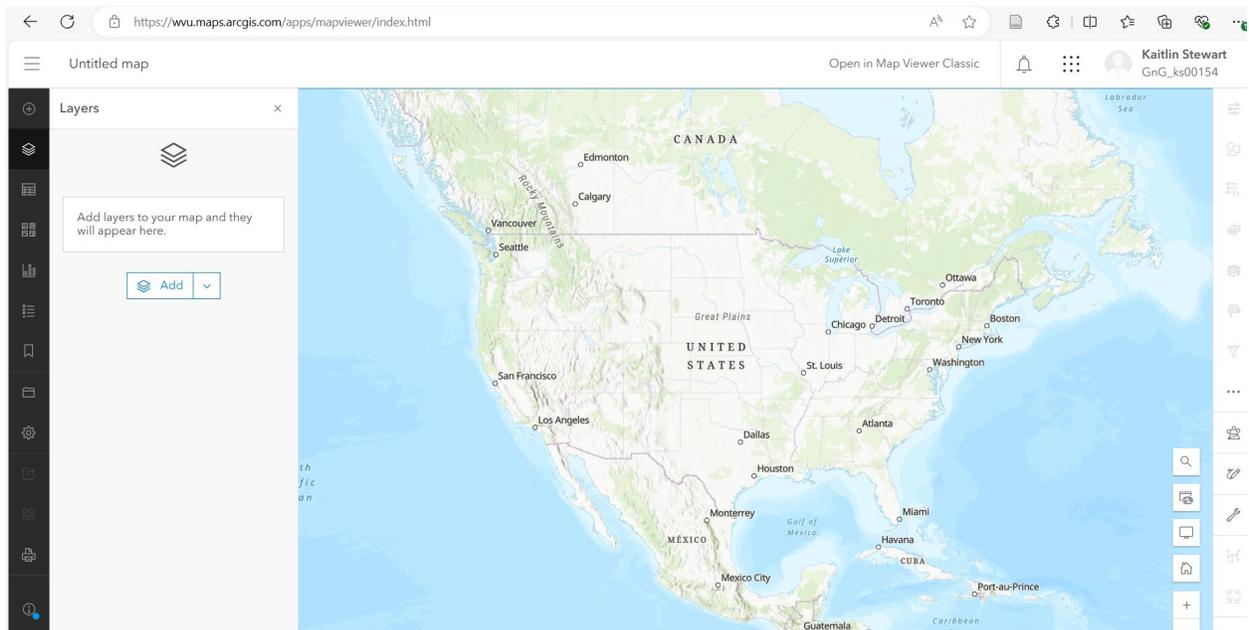
To sign in to your ArcGIS Online account, on the top right corner of the main page of the website, you will select the Sign In Button. For WVU students: you should have received an email with your username for the course at the beginning of the semester. Typically, this will be the course prefix and number followed by your WVU username.



Once you have successfully logged in, you will see you have access to a variety of options in the top ribbon.



- The **Gallery Tab** allows you to see all the data published by users within your organization. They can be sorted by their type, map, layer, apps, tools, etc.
 - The **Scene Tab** opens a 3D image of the earth. This allows you to see certain layers in a 3D context, which can be useful for different projects.
 - The **Groups Tab** allows you to manage the groups you work with and create collaborative projects with people both inside and outside your organization.
 - The **Content Tab** allows you to see what data you have created in ArcGIS, change permissions, and update the basic information about your data layers and maps.
 - The **Organization Tab** allows you to see important organizational information, including who your administrative contacts are in case you encounter an issue with your account.
 - Most of your work will be within the **Map Tab**, which will open a new map in Map Viewer.
- ❖ Go ahead and select the Map tab to begin the project.



Map Viewer gives us a variety of tools/functions to work with, and our main options are located on the left side of the screen.

- New data layers or basemaps can be added using the Add Button.
- The Layers Button closes and opens the Layers Pane.
- The Tables Button allows for viewing and adding tables.
- The basemap can be changed using the Basemap Button.
- The Charts Button allows you to add and configure charts.
- The Legend Button closes and opens the Legend Pane.
- The Bookmarks Button allows you to add and manage bookmarks.
- The Open and Save Button allows you to save changes, save a copy of the current map (Save As), initiate a new map, and open an existing map.
- The Map Properties Button allows you to change map properties, such as setting a background color or preserving the map scale.
- The Share Map Button allows you to change the sharing settings (Owner, Organization, Everyone). You can also share with groups within your organization.
- The Create App Button allows you to create an app from your map using different methods: InstantApps, ExperienceBuilder, StoryMaps, and Dashboards.

- The Print Button allows you to print a layout from the current map.

For the next part of the lab, we will be working within the layers section. But first, it is important to save your work often.

- ❖ To save your work, click the Open and Save Button and name your map **Exercise_11**. You can either save your map to your main folder or create a new folder by selecting the down arrow under the Folder area. I would suggest creating a new folder and naming it **Exercise_11** so all your saved data ends up in the same place.

Part 2: Adding Data Layers from ArcGIS Online

There are multiple ways to add data layers to ArcGIS Online. One of the most advantageous parts of using ArcGIS Online is having quick access to online resources.

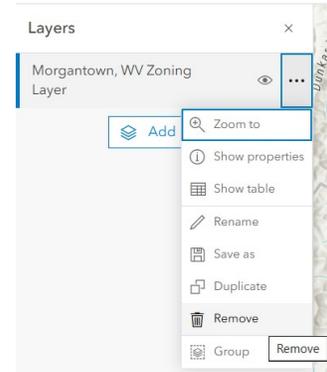
On the left-hand side of your screen the Layers Pane should be open. The Layers Pane allows you to add layers from data you've already created or take data from online resources.

- ❖ To add data, click the Add Button and the Add Content Pane should open. It will start by showing you the content you've already made. Select the down arrow next to My Content, and in the drop down select ArcGIS Online.

From here, you can search for layers created by any user in ArcGIS.

- ❖ In the search bar, type "Morgantown Zoning" and you should find a layer created by the City of Morgantown. Select the Add Button to add this to your map. Once the data is added to your map, click around and explore the data; you can select one zoning area to read information from the city about that zone.

- ❖ Once you are done exploring the data, you can remove the layer by hitting the Back Button next to Add Layer. From there, select the three dots next to the layer name and select Remove.



ArcGIS Online also offers access to the ArcGIS Living Atlas. The Living Atlas is a curated set of maps and data made by large organizations and users. Many of the maps and data are created by governmental organizations and ESRI themselves, so if you need data, such as Census blocks or other government data, they can often be found in the Living Atlas. These maps are high quality and used for a variety of important services.

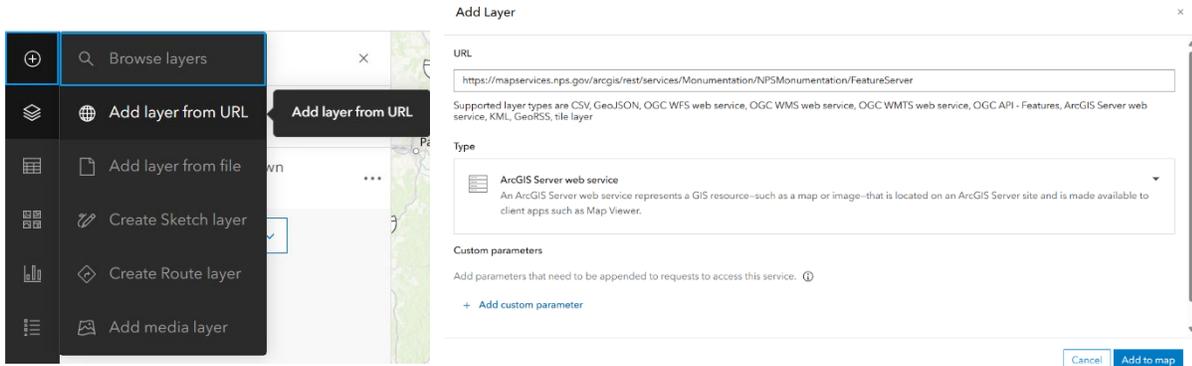
- ❖ You can access the Living Atlas by selecting the Layer Button and navigating to Living Atlas. Once the Living Atlas data section opens, search for “West Virginia”. One of the first results should be the “West Virginia Census 2020 Redistricting Blocks” created by ESRI. Hit the add Button to add the data to your map. Feel free to explore the data and then remove it once you are done.



The final external data source you can access through ArcGIS Online is data through Services. Services are a resource such as a layer or a map. The URL for a service gives you a direct link to that source from the organization’s ArcGIS Server. For this project, we will connect the National Park Service’s layer with all the National Monument survey points.

- ❖ To add this Service layer to the map, select the Add Button and choose “Add Layer from URL”. The Add Layer pane will open, and you will paste in the following link to add the service:

<https://mapservices.nps.gov/arcgis/rest/services/Monumentation/NPSMonumentation/FeatureServer>

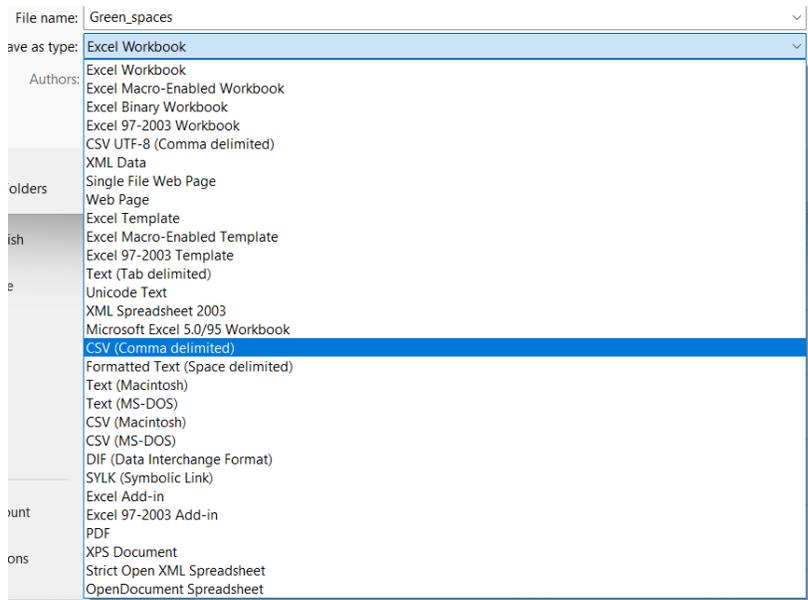


- ❖ The pane will identify the type as an ArcGIS Server web service, and you can click Add to map once you are finished. Feel free to navigate the new data layer, and then remove it from your map once you are done. There are many organizations that offer ArcGIS web services.

Now that you have learned the ways to add data from external sources, we will move on to adding your own data.

Part 3: Uploading Data to ArcGIS Online

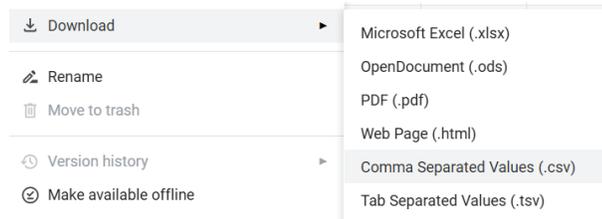
Now we will work on adding your own data to ArcGIS Online. Let’s say you have a list of addresses that you want to highlight in your online map. You can add these addresses from a Comma Separated Values file, or CSV. In the Exercise_11 data folder, there are three csv files: [Historic_sites.csv](#), [WVU_locs.csv](#), and [Green_spaces.csv](#). These are the locations of historic sites, WVU buildings, and green spaces around Morgantown that might be of interest to tourists visiting the area.



CSV files for addresses typically contain the name of the location, the street address, city, state, and zip code of a location. Occasionally users include additional information such as exact latitude and longitude location and descriptive information.

Note: CSV files can easily be made from Microsoft Excel or Google Sheets.

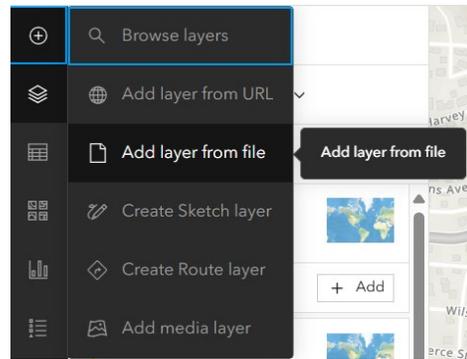
❖ In Excel, select File, Save As, find the location where you would like to save your file, and change the file type to CSV (Comma delimited).



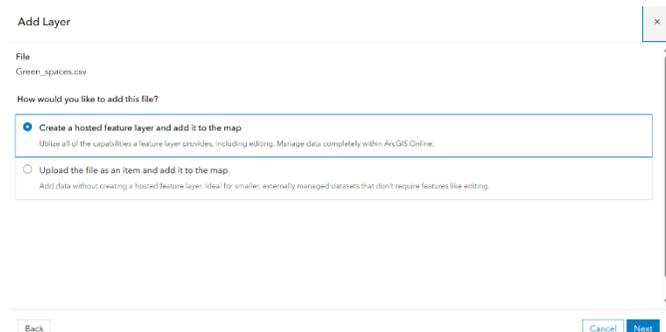
❖ In Google Sheets, select File, Download, and then Comma Separated Values (.csv).

❖ To add a csv to your map, select the Add Button and choose Add layer from file. Navigate to where you saved the [Exercise_11](#) folder and find the three csv files: [Historic_sites.csv](#), [WVU_locs.csv](#), and [Green_spaces.csv](#). Select [Green_spaces.csv](#) and click Open. This will open the Add Layer pane.

❖ You can choose to either create a hosted feature layer, which will add the layer to your ArcGIS Online content, or just upload the file and add it to the map. For this project, I suggest creating a hosted feature layer. By making your layer a hosted feature layer, you will be able to access and edit it easily in ArcGIS Online in the future.



❖ Next, it will prompt you to select the fields you want from your data. You can leave this screen as is and select Next. Then, the screen will ask you where your address data is stored. For this layer, the data is stored in one field. Press Next.



Location settings
Specify the type of location information the file contains.

 **Addresses or place names**
Location data is addresses, place names, postal codes, and countries. May consume credits.

> Advanced location settings

Location fields *

Location information is in one field.

Location information is in multiple fields.

- ❖ Finally, you will be prompted to give your hosted feature layer a title, select a folder, give it tags, and create a summary for your layer. Tags and summaries make your data more accessible as people can search for your data with the tags and decide if the information is relevant through your description in the summary. You can use the following picture as a reference for potential tags and a summary you may want to write for your layer. Make sure to put commas between each of your tag words. Once you are finished, you can hit “Create and add to map”.

Add Layer ×

This file will be used to create a hosted feature layer or table.

Title

Folder

Tags
 ×
 ×
 ×
 ×
 ×

Summary

Characters left: 1954

- ❖ Follow these steps for the remaining two CSV files, using your own tags and summaries before publishing your new hosted layers.

When you add a layer to a map, you can access various tools to help you refine your layers. Note that whatever layer is selected or active in the Layers List will be available for editing. The Buttons available will depend on if a layer is selected and the type of layer selected.

- **Properties:** change the symbology, transparency, visibility range, and refresh interval

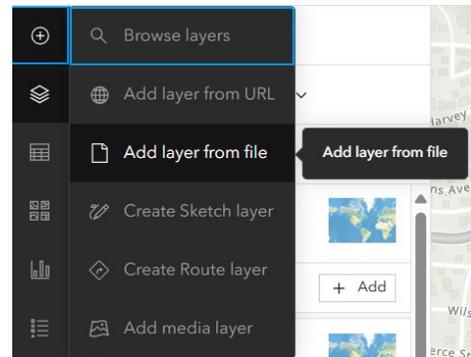
- Styles: further customization of symbology
- Filter: query features based on attributes to highlight key features
- Effects: apply effects, such as drop shadows, blur, saturation changes, and sepia
- Clustering: define clustering options for display of congested data
- Configure Pop-Up: configure or disable the layer pop-up
- Configure Fields: configure or rename fields
- Labels: work with labels
- Charts: build and configure charts

Adding Shapefiles

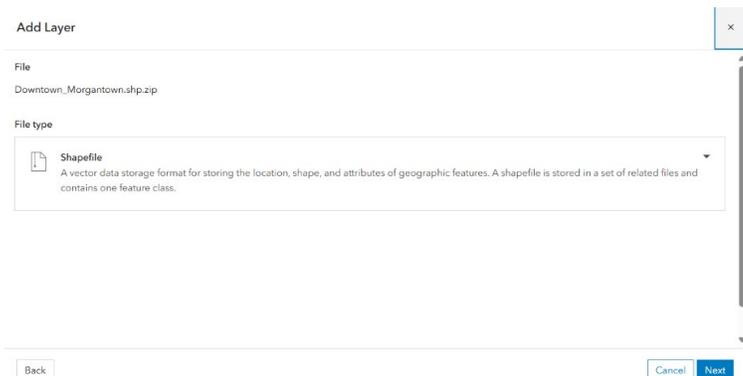
Another important feature data type for ArcGIS Online are shapefiles.

In the Exercise_11 data folder, there is a zipped folder called Downtown_Morgantown.shp. ArcGIS Online requires that all the parts of a shapefile be compressed into a zip folder. If the shapefile is not in a compressed folder, ArcGIS Online will not recognize it and you will be unable to add the file to a web map. **Additionally, all layers should be referenced to the WGS84 geographic coordinate system or the Web Mercator projection.**

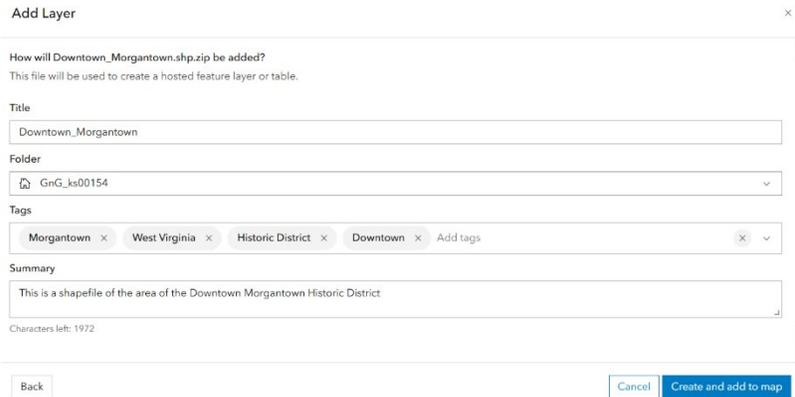
- ❖ To add the shapefile, click the Add Button and navigate to Add layer from file. Select, “Your Device”, then select the **Downtown_Morgantown** zip folder. The Add Layer pane will then prompt you to select what type of file you are uploading. Make sure Shapefile is selected, then press Next. From there, the pane will prompt you to choose how the Layer will be added. You can keep the name the same.



- ❖ Tags are used to help people easily search for your layer, so choose keywords that are important to your project. For this project, we chose Morgantown, West Virginia, Historic District, and Downtown. Make sure to put a comma between each tag word.



- ❖ The summary is a place to give a short explanation of what your data represent. For this layer, we just put “This is a shapefile of the area of the Downtown Morgantown Historic District”. After you add the tags and summary, hit Create and Add to Map.

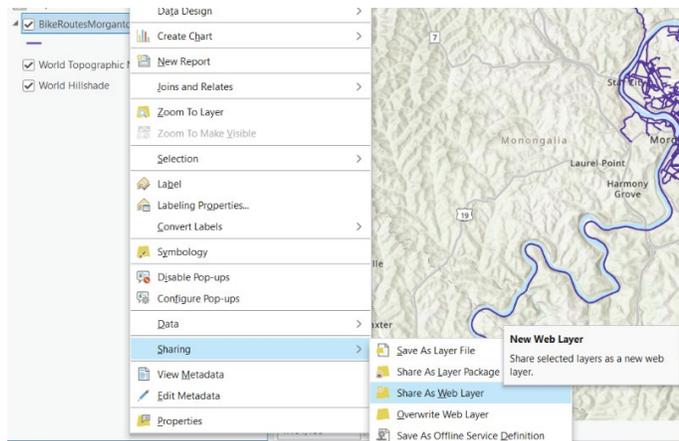


The resulting shapefile should be added to your map view. This represents the area of the part of Downtown Morgantown that is designated as a historic district. Now you can add shapefiles to any ArcGIS Online project you create in the future. Next, we will move to adding data from ArcGIS Pro.

Part 4: How to Publish from ArcGIS Pro

You can create layers from data you’ve created in ArcGIS Pro.

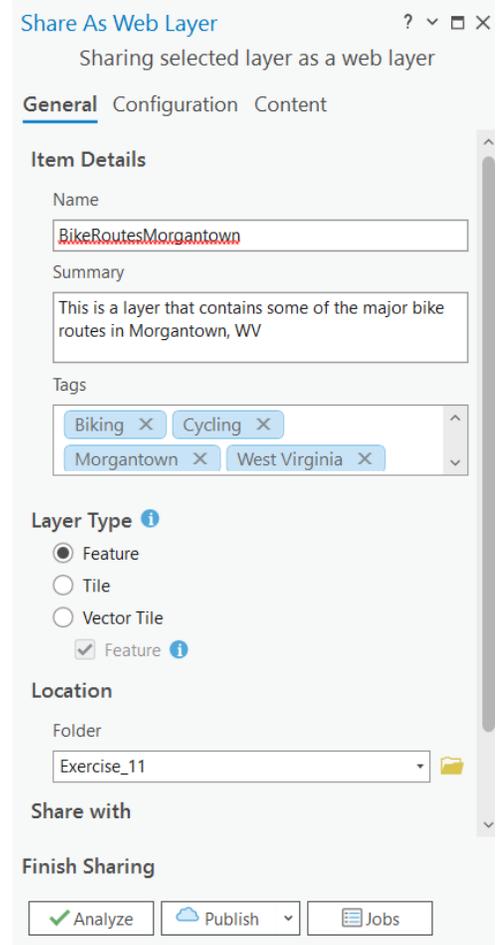
- ❖ In the Exercise_11 Data folder, open [Morgantown_Bike_Routes.aprx](#). This will open a map with some of the major bike routes in Morgantown. Make sure to log into your ArcGIS account when you open up Pro to make the process easier.



- ❖ To turn your ArcGIS layer into a web layer, right click on the [BikeRoutesMorgantown](#) layer in the Contents Pane, select sharing, then Share As Web Layer. This will open the Share As Web Layer pane.

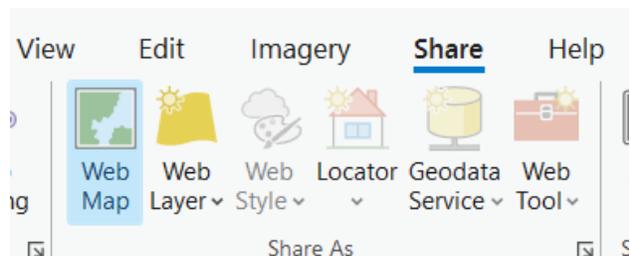
- ❖ You will be prompted to give your Web Layer a Name, Summary, Tags, choose the layer type, and select a folder for it to be saved to. You can use the image to the right to determine some of the information you might add to a web layer. Once you are done, you can select Analyze to ensure that everything is correct with your layer. If there are errors, ArcGIS Pro will tell you the error code, and you can select the error to find out how to solve it. Our data should present no errors, so you can select Publish. You can close the Bike Routes project.
- ❖ Now you can go back to your Exercise_11 map in ArcGIS Online to add your web layer.
- ❖ In the Layers tab, select add. This should open My Content. Your Bike Routes layers should be one of the first available in the My Content area. Find it and add it to your map.

Now you can easily use layers created in ArcGIS Pro in web maps.



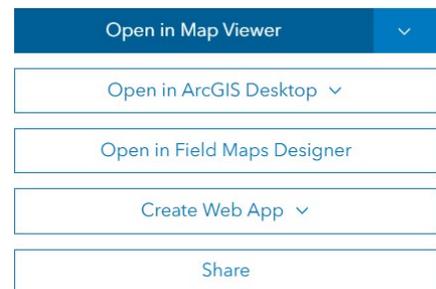
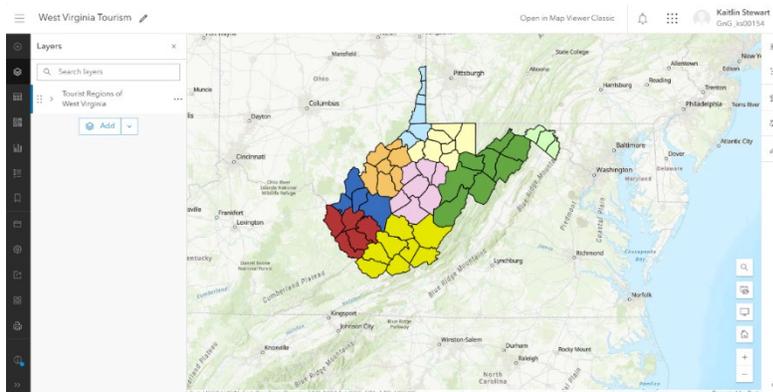
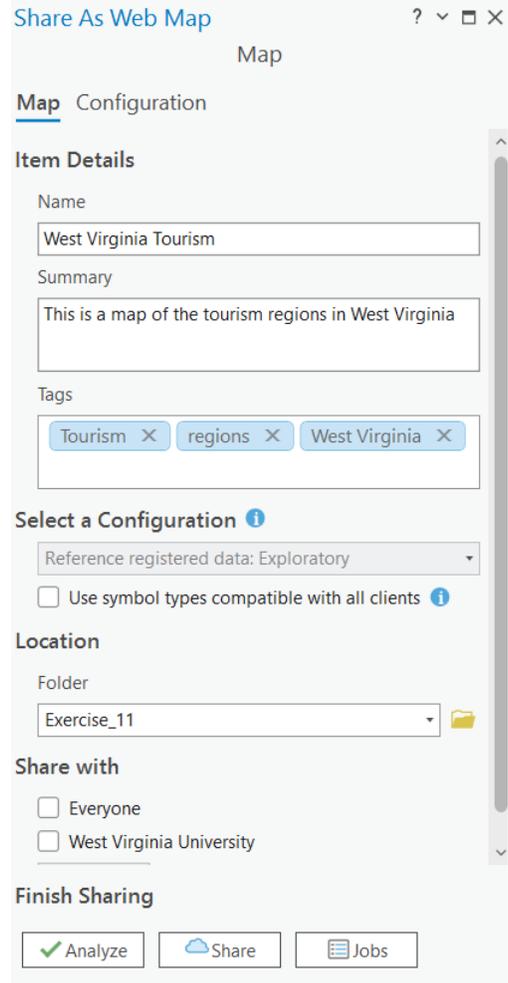
You can also turn maps you've created in ArcGIS Pro into web maps. This can be useful because ArcGIS Pro allows for a high level of customization with maps. In the Exercise_11 Data folder, there is another map project called WestVirginiaTourism.aprx, open this to see a map of tourism zones in West Virginia. This map was created using data from the US Census Bureau.

Take some time to explore the data. Note that I have already configured the pop-ups and changed the symbology. However, feel free to make any additional changes. I have symbolized each tourism region with a different color. The county boundaries are provided with a color and a black outline. All of the data layers have been projected into Web Mercator. You will now need to create a web map from this map. Note that this is different from what you did in the first part of this module. In the previous section, you published only the layers using the Share Map As A Web Layer Tool. Now you will publish the entire map using the Share As Web Map Tool. A web map, host feature layer with sublayers, and a service definition will be generated.



- ❖ To publish the map as a Web Map, select the Share tab and in the Share As section, select Web Map. Just like with sharing as a Web Layer, you will be prompted to give your map a name, Summary, Tags, and select a folder for the map to be saved in. In this pane, you can also select where you would like your map to be shared. You can make your map public by sharing with Everyone, or just share with your organization.
- ❖ Just like before, select Analyze to make sure there are no errors with your map, and then select Share to publish your map to ArcGIS Online.
- ❖ Now you can navigate back to ArcGIS Online and see your new Web Map. Make sure to save the current map we are working on, then navigate to Content, and your Web Map should be one of the first entries on the page. Click on it to open the information, then select Open in Map Viewer from the right hand side of the page.

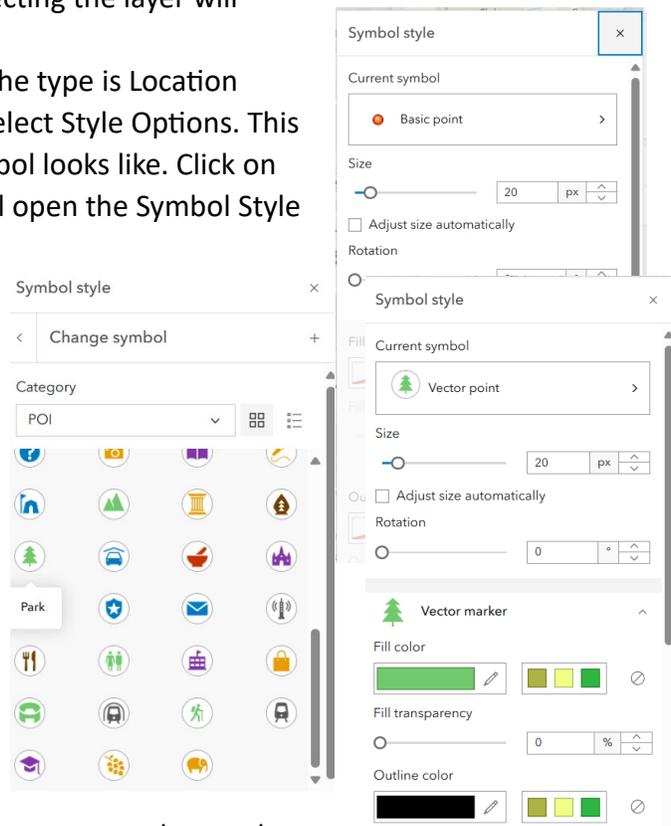
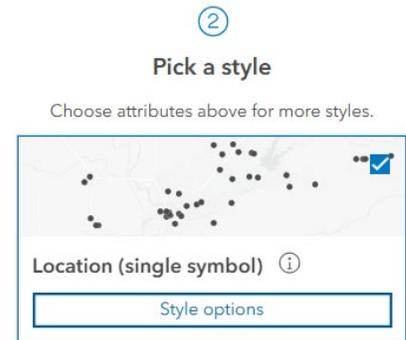
This method can be used for any map you make in ArcGIS Pro and can increase the accessibility of your map.



Part 5: How to Change the Symbology of your Map

The symbology of a map is important for many reasons. You may want to change the symbology to represent a certain brand or company you are working for. Symbology can also make it easier for users to understand the meaning of your map. Since we have multiple types of locations and data in our tourist map, we will change the symbols for each location.

- ❖ To access symbology, click on the layer you want to change the symbology. In this case, select the Green Spaces layer from the layer area. Selecting the layer will open the Properties pane.
- ❖ Under Pick a Style, you will see that the type is Location (single symbol). Under this, we can select Style Options. This will allow us to change what the symbol looks like. Click on the box under Symbol style and it will open the Symbol Style Pane.
- ❖ We can see that the Current symbol is Basic point. Hit the right arrow next to this and it will open the other symbol options. Currently, we are in the Basic Shapes area, click the down arrow next to it to look in other areas for an appropriate symbol. For my map, I went into the POI (Points of Interest) Section and selected the Park symbol.
- ❖ Once you have found a symbol you like, you can hit the back arrow next to Change symbol and go back to the main Symbol style page. From here, you can change the size, colors, and rotation of your symbol to whatever you like. Once you are finished, hit done.
- ❖ Next, follow the steps above for the Historic locations in Morgantown, the Downtown Morgantown Historic District, and the Bike Routes. Each of these has slightly different Symbol style panes, so explore the pages to see the different options available to you. Make sure to leave the WVU Locations symbols as is, we will change them in the next section.

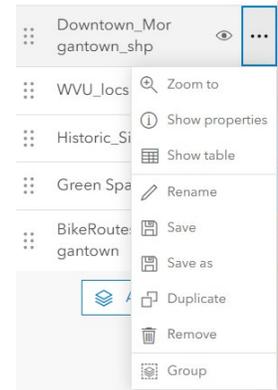
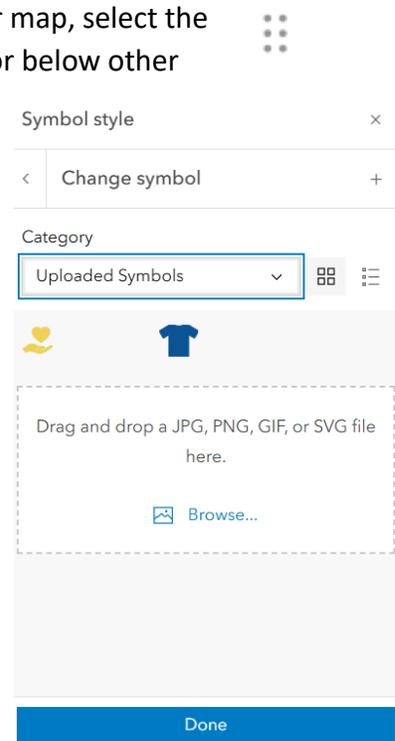


Note: If you need to change the arrangement of the layers in your map, select the reposition dots to the left of the layer name to drag them above or below other layers.

Adding your own icons

It can sometimes be helpful to use your own icons for ArcGIS Online maps. You may have a feature or symbol that is not easily represented by the icons available in ArcGIS Online. In this case, you can use images as symbols to represent different locations.

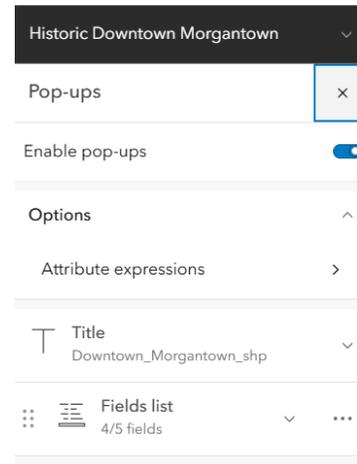
- ❖ Navigate to the Symbol style pane for the WVU Locations layer. In the Change symbol pane, change the Category to Uploaded Symbols. Select Browse and navigate to the Exercise_11 Data folder and select **WVU Logo.png**. When you upload the image, all the WVU locations should change to the WVU logo. This can be done with any image file and is useful for organizational logos and to make locations more easily identifiable.
- ❖ Another important part of the layout of your map is the name of the layers. In the layers section of your map, click on the three Buttons to the right of the layer name, then go down to Rename. This will allow you to change the names of each of the layers.
 - ❖ Downtown_Morgantown = Historic Downtown Morgantown
 - ❖ WVU_locs = WVU Locations
 - ❖ Historic_Sites = Historic Sites
 - ❖ Green_Spaces = Green Spaces and Parks
 - ❖ BikeRoutesMorgantown = Bike Routes



Part 6: Configuring Map Pop-Ups

Now that your data has been updated and well represented through symbology, you can change how users interact with your map through pop-ups.

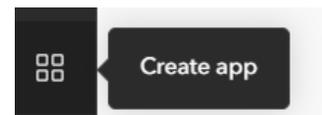
- ❖ The first part of configuring map pop-ups is to enable and disable pop-ups. In the Layers pane, click on the Historic Downtown Morgantown layer. The right-hand side will have the layer editing pane. Select the Pop-Ups Button.
- ❖ This will open the Pop-Up editing pane, where you can turn pop-ups on and off. Turn off the pop-ups for the Historic Downtown Morgantown and Bike Routes layers.
- ❖ Next, open the Pop-Up editing pane for the WVU Locations Layer. Currently, our pop-up shows the previous layer name in the title. Select the down arrow to the right of the title information to edit it. Change the title pop-up so that it says “WVU Location: {Name}”. This way, the pop-up will inform the user that this is a WVU Location and provide the name of the place. Our CSV data is also configured to have the website information for each location, so that users can open the website and learn more information.
- ❖ In this area, you can also change which fields are shown in your pop-up. Since our dataset only has the name, address, and website of the location, we will leave all of them included. However, if you had a dataset where you had a field you did not want to show in your pop-up, you would expand the fields list and click the X next to the field.
- ❖ Change the rest of the pop-up layer titles to their correct names.
 - ❖ Downtown_Morgantown = Historic Downtown Morgantown
 - ❖ Historic_Sites = Historic Sites
 - ❖ Green_Spaces = Green Spaces and Parks
 - ❖ BikeRoutesMorgantown = Bike Routes



Part 7: Generating an Instant App

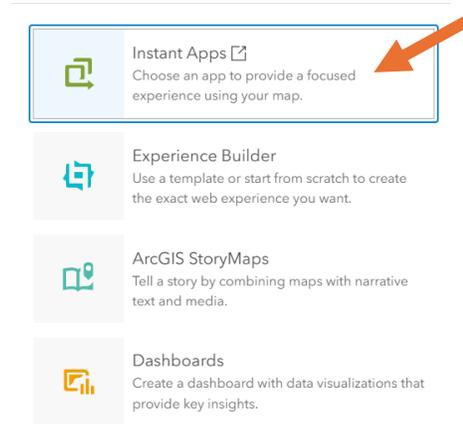
Now that you have a map with points of interest, bike routes, information on the historic district, and their appropriate pop-ups, we will create an Instant App. Instant apps allow you to quickly create an interactive app for users to explore your data in.

- ❖ To start your Instant App, click the Create App Button on the left-hand side of the screen. You will be provided a few different options to use for an App:

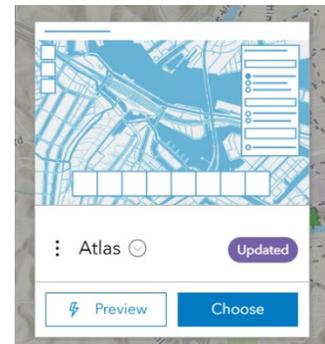


- Instant App
- Experience Builder
- ArcGIS StoryMaps
- Dashboards

Each of these different app styles can be used for a variety of purposes. For the purpose of this exercise, we will be using the Instant Apps option. Instant Apps focus primarily on the data contained within your map and allow users to interact with it in different ways, such as searching for features and getting directions to a location.

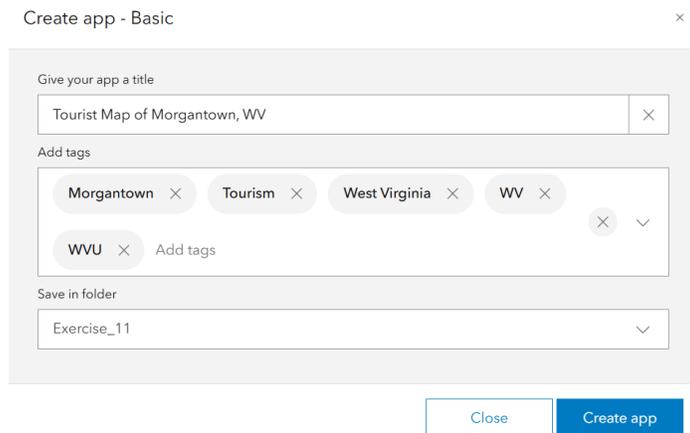


- ❖ Go ahead and select the Instant Apps Button. ArcGIS Online should open a new tab with the Instant App interface.
- ❖ When the interface opens, you will be presented with multiple app options. To learn more about each app, you can select the down arrow next to the name and you will get a pop-up with more information about the purpose of the app. For our map, we will use the Basic app layout. From there, you will be prompted to give your app a title, tags, and choose a folder for it to be saved to.
- ❖ Once you have finished filling out the Create app-Basic pane, click Create app.

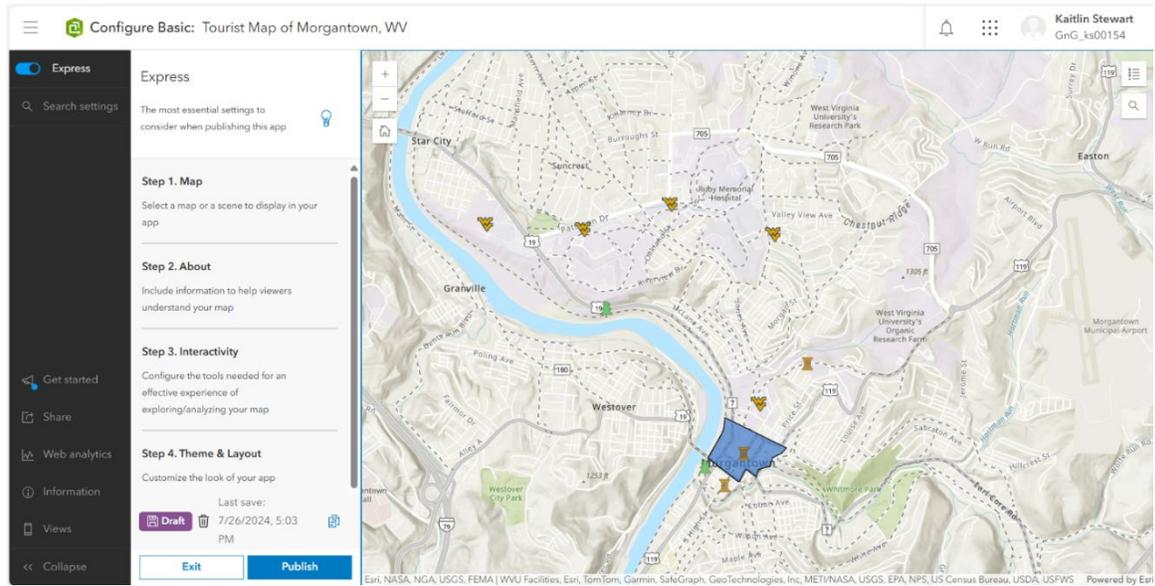


You will be presented with the basic layout of your map and ArcGIS Online will prompt you to follow 5 steps:

1. Select a Map
2. Add about information
3. Choose how users interact with the map
4. Choose the theme and layout of your map



5. Publish your finished app



- ❖ Since we started our Instant App with our WebMap, we have Step 1 completed. If you would like, you can click and drag on your map scene to center it on whatever part of the map you feel is the most important. Once you are happy with the map, click Step 2.
- ❖ In Step 2, we choose what information users will see and how it is displayed.
 - Header: Adds the name of your app to the top of your Instant App in a box
 - Legend: Shows users the legend information for your map
 - Fixed pop-up location: Has the pop-ups for location features appear in the same place rather than over the feature itself
 - Text alternative: Allows you to create an in-depth written description of your map that can be used by those with vision impairments
 - Shortcuts menu: Allows users to use keyboard shortcuts when interacting with your map
- ❖ Feel free to play around with the settings of the Instant App, and when you are satisfied with the information configuration, click on the Next Button at the top of the Step 2 pane.

About

Include information to help viewers understand your map



< Back Next >

Step 2 | Express

Header ⓘ

Legend ⓘ

Fixed pop-up location ⓘ

Text alternative for the map ⓘ

✎ Edit

Shortcuts menu ⓘ

Step 3 Focuses on configuring the interactivity of your map, how users can search, scroll, and view information on the map. It comes with a few different options to toggle on and off:

- **Disable Scroll:** Makes the map so that users cannot zoom in and out when they scroll on the map (often most useful for very small map areas)
- **Layer list:** Shows the users a list of the layers and allows them to toggle certain layers on and off for visibility.
- **Export:** Allows users to export the map to a PDF.
- **Search:** Finds locations on the map based on user searches.
- **Search Open at Start:** Has the search bar open for users as soon as they open the Instant App.
- **Search Configuration:** If you used a different Geocoding service for the layers in your map, you could add that service here to base user location searches on.
- ❖ Since this is a tourism map, I would suggest having the Search Open at Start toggled on, and possibly export, as some users might want a PDF of the map on their phone to help them navigate the city. Once you are happy with the settings of this, click Next.

Step 3 | Express

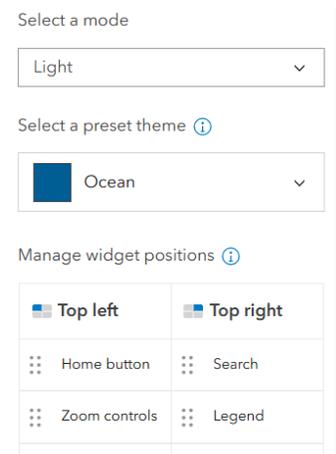
- Disable scroll
- Layer list
- Export
- Search
- Search open at start

Search configuration ⓘ

The default is the top source or select All sources

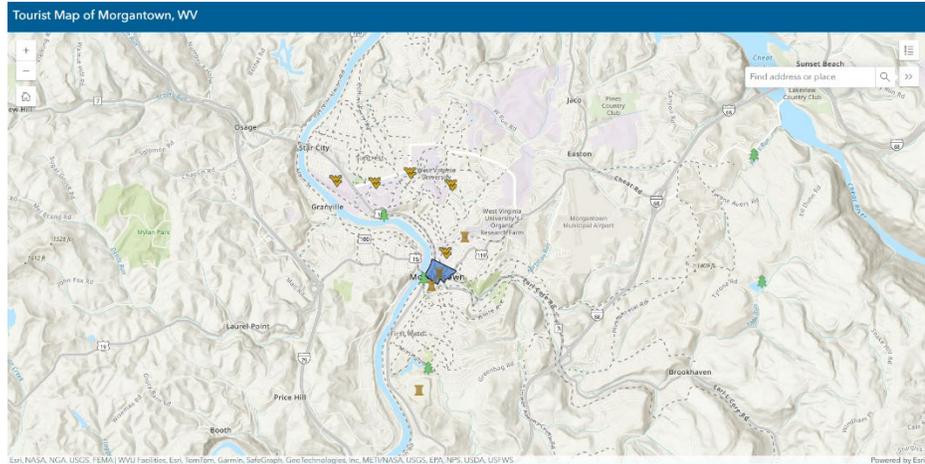
Step 4 focuses on the aesthetics of your Instant App:

- **Select Mode:** Choose if your app will appear in light mode (white background) or dark mode (dark grey/black background).
- **Select a Preset Theme:** Choose different color and style themes for your app (**Note:** You will not see the color preview if you do not have the header turned on from Step 2).
- **Manage Widget Positions:** Decide where widgets, such as the search bar, will appear on your app.
- ❖ Feel free to play around with the settings in Step 4 until you feel like the interface is comfortable to use.



Once you are happy with the layout of your app, select Publish. Once you have published your app, you will get a pop-up with the option to launch your app. You can also use this opportunity to share the link for your app via email or social media. Go ahead and choose launch.

Once you have launched your app, you will be able to see what it looks like to the public. While we could see previews of the app in the process of using the Instant App tool, this will allow you to interact with your app and see if all of the features are functional.

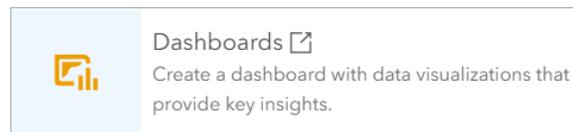


- ❖ If you encounter an issue with your app and want to change something, navigate back to the main ArcGIS Online webpage and go to the Content tab. Under My Content, you can click on your Instant App and click on the Configure Button. This will allow you to go back to the Instant App generation feature and change any of the settings within it.



Part 8: Generating a Dashboard

You now know how to get data into a web map using several different methods, how to change layer symbology, how to configure pop-ups, how to create a new hosted feature layer with the required geometry and fields, and how to generate an Instant App that uses your map and data. In this section, you will expand your skills to include creating dashboards to monitor your data.



- ❖ On the left side of the screen, select the Create App Button, and go down to Dashboards. When you select the dashboards Button, it will open up a new tab where you will be prompted to add Tags, a Summary, and choose a folder for the dashboard to be saved in.

Note: In this area, you need to hit enter between each tag entry.

❖ Once you have added your tags, summary, and choose the folder for your dashboard to be saved in, click Create dashboard.

❖ On the left side of the dashboard area, you will be presented with a few options:

Create new dashboard from: Exercise 11

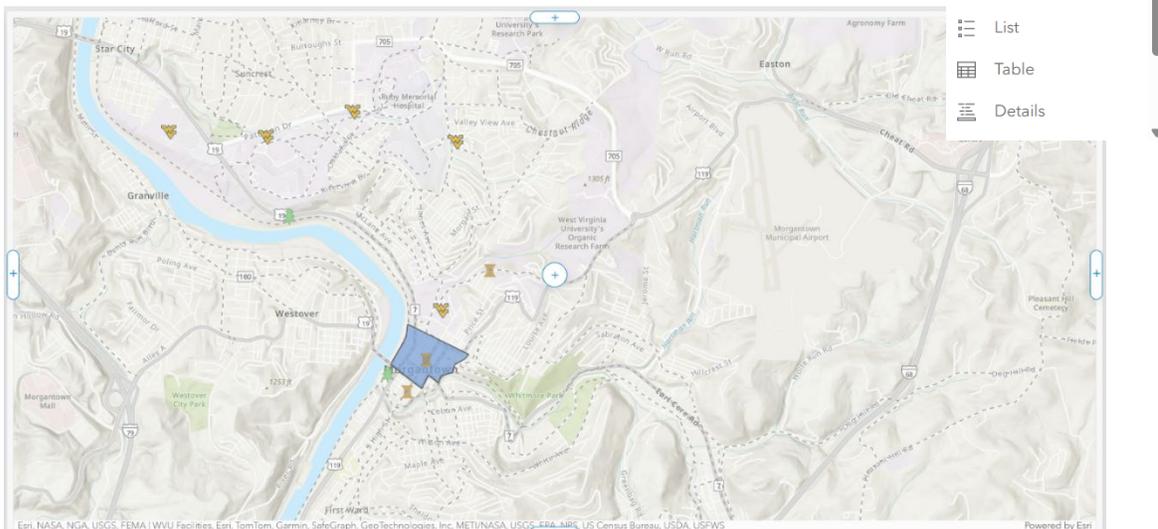
Title*
Exercise 11

Tags
Morgantown × West Virginia × Tourism × WV × Bike Trails × Points of Interest ×
Add tag

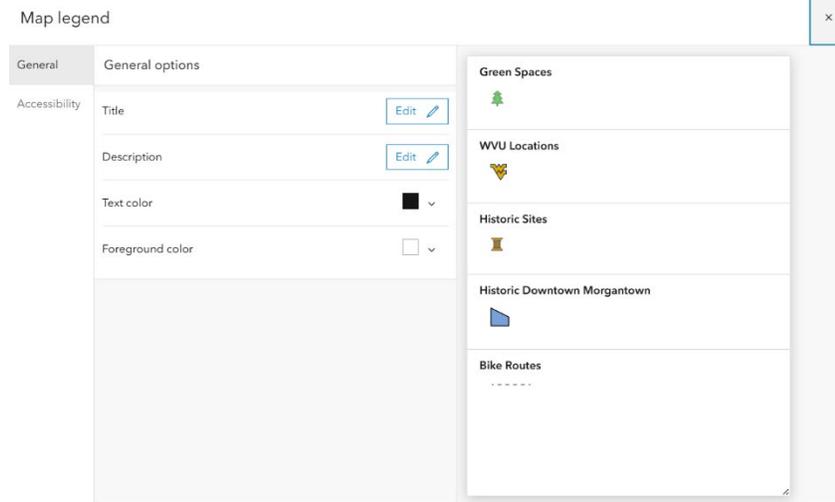
Summary
This is a dashboard that monitors tourism information about Morgantown, West Virginia

Folder
Exercise_11

- Add Element: Allows you to add new elements to your dashboard such as legends, charts, tables, indicators, more maps, and details.
- View: Allows you to see the desktop and mobile views of your dashboard.
- Theme: Allows you to change the color theme of your dashboard.
- Time and Region: Allows you to change the time zone your dashboard appears in.
- Save: Saves your dashboard progress.
- ❖ Select the Add element Button and your map will show plus signs on the top, bottom, left, and right edges, as well as the center. These allow you to select where your new element will appear on your dashboard. Select the plus on the right edge of the map, and you will see a pop-up with multiple options for elements. Select Map legend.



- ❖ When you select the Map legend option, the Map legend pane will appear. This pane allows you to change the title of the legend, give a description for vision impaired users, and change the colors of your map. Feel free to

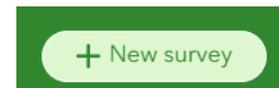


play around with the settings of the legend, then press Done when you are happy with how it looks. This should automatically add your legend to your dashboard.

Now our legend takes up a lot of space on your dashboard. We are going to add more to the dashboard, starting with adding an ArcGIS Survey123 form to the dashboard.

Integrating Forms

- ❖ First, you will need to navigate to the ArcGIS Survey 123 website. The following link should take you there: [ArcGIS Survey123](#). Once you arrive at the website, log in using your ArcGIS Online user information.
- ❖ When you are logged in, you will start on the My Surveys page. This will have some of the surveys created by other people in your organization. From here, select the New survey Button. This will present you with three options:



- Make a survey from scratch.
- Use a template.
- Use Survey123 Connect that allows you to sync your information from the Survey123 field app to your organization.

New survey

Using the web designer

Blank survey

- Start from scratch
- Design your own survey
- Use a drag-and-drop editor

Get started

Using Survey123 Connect

Template survey

- Browse industry templates
- Pre-configured questions
- Use a drag-and-drop editor

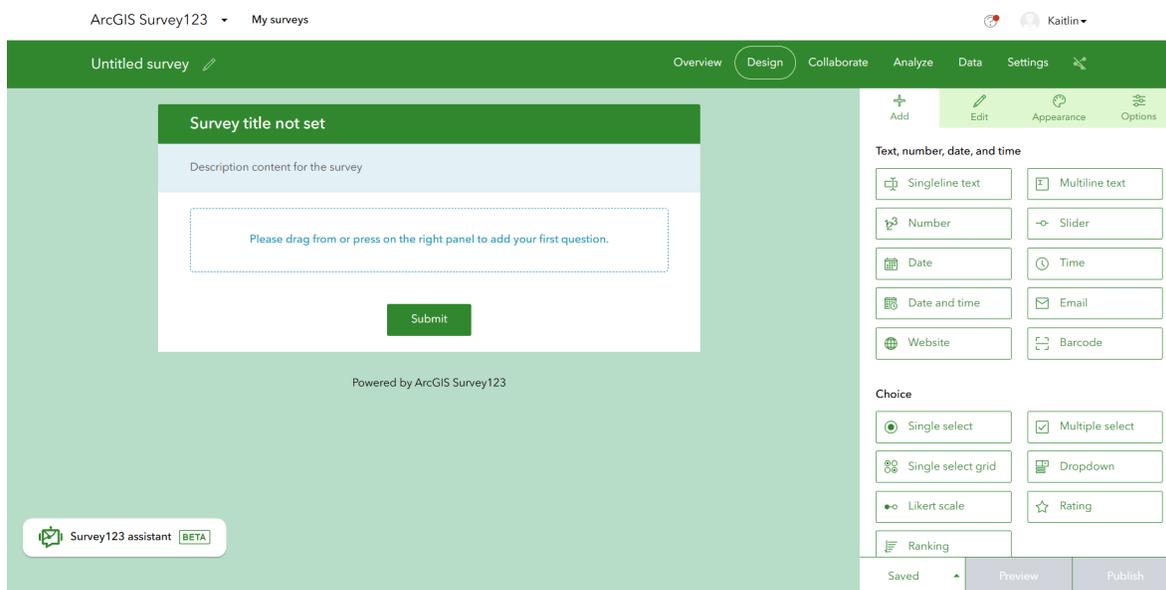
Get started

Survey123 Connect

- Use a desktop application
- Full smart form capabilities
- Edit an XLSForm spreadsheet

Get started

- ❖ For our lab, we will start with a blank survey. Go ahead and click Get started under the Blank survey option.



This will open a blank survey where we can begin to add elements. But first, we have a few tabs:

- Overview: Allows you to see an overview of the number of responses to your survey and when they happened.
- Design: Allows you to change the elements of your survey.
- Collaborate: Allows you to change the sharing permissions of your survey to either the public or your organization, share results, and give permissions to edit the survey.
- Analyze: Allows you to view each response to your survey.
- Data: Turns the responses to your survey into a table of the results.
- Settings: Allows you to change what version of WebApp your survey appears in, allows you to connect to webhooks, and allows you to require location sharing in a survey.
- Share: Gives you a link and QR code to your survey.

Within the Design tab:

- Add: Allows you to add questions to your survey by clicking and dragging them into the center survey area.
- Edit: Allows you to edit questions added to your survey.
- Appearance: Allows you to change the color theme of your survey.
- Options: Allows you to change what happens at the end of the survey, the thank you screen, and if the survey reloads automatically after someone submits it.

Edit survey info ✕

Thumbnail



Name *

Tags

Summary

Add a summary to provide information about the survey that will display when the survey link is shared publicly

- ❖ After we give the survey a name, we need to give it a title. At the top of your survey, click the “Survey title not set” to edit the survey header. Change the text to “Morgantown Tourism Reviews”. Then, hit the Add Button to change over to the question add area.



Now we will start adding questions to our survey.

- ❖ First, click and drag a single line question to the survey area. This will open the question editing pane. The Label area is where we will write the question. In this area write “Which location did you visit?” Without the quotes.
- ❖ We do not need to add a hint or calculation, so scroll down in the pane until you see the Validation option. We want to make this question required, so check the box. Now you can go back up to the top of the pane and hit the add Button again.
- ❖ The next question we will add is a Date question. Drag and drop it into the survey area. This will allow us to ask the survey taker when they visited the location. Scroll down in the pane until you see the Default value option. Since we can hope that people will see our map and visit a location, we can change the default value to Submitting date, or the day they respond to the survey.

Singleline text ↕

Label

Hint

Provide additional information for this question

Date ↕

Label

Hint

Provide additional information for this question

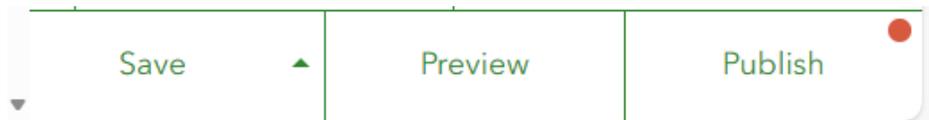
Default value

Submitting date
 Specified date

Calculation ? Edit

Once you are done, make sure to make the question required, and then hit the Add Button again.

- ❖ Next, add the following questions:
 - ❖ A required slider question asking the person to rate their experience.
 - ❖ A non-required multiline text question prompting the person to add comments about their experience.
 - ❖ A non-required single line text question asking the person if there are any locations that should be added to the tourism map.
 - ❖ Once you add the questions, make sure to save your survey. You can then click Preview to see what your map looks like to the public, and then hit Publish. You will be asked if you are sure you want to publish the survey. Click Publish again.

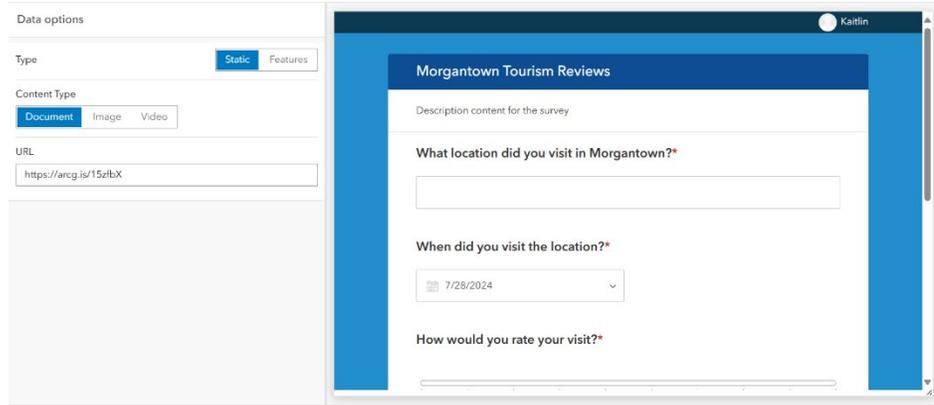


- ❖ Now that your survey is published, click the Share Button on the top ribbon and copy the survey link. We will use this to add our survey to our dashboard.

- ❖ Navigate back to your ArcGIS Dashboard and select the Add Button. Select the plus sign underneath your legend.
- ❖ Scroll down in your options until you find the Embedded content option. When you select this Button, it will give you a pop-up where you configure your embedded content. Our survey will be a static feature, it is considered a document, and then you will paste the survey link we copied earlier into the URL space. If it works properly, you will see a preview of your survey to the right. Once you are finished, hit Done.

A screenshot of the survey sharing interface. At the top, there is a 'Copy the URL' button. Below it, the text 'Survey link' is followed by the URL 'https://arcg.is/15zfbX' and a copy icon. To the right of the URL is a QR code. Below the QR code is the text 'Scan the QR code to open the survey on your device.' and a 'Click to download' link. At the bottom, there is a button labeled 'Embedded content' with a small icon to its left.

❖ Now that your survey is added to the map, go ahead and fill out your own review for one of the locations so that it has

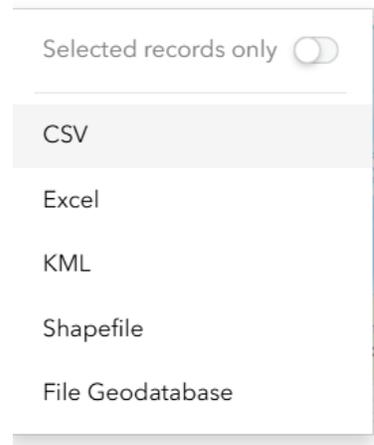


data. Now we will work on integrating tables into your dashboard.

❖ If you wanted to add the results of your survey so that people visiting your dashboard could see what people thought of each location, we can do so with a table. Navigate back to your Survey123 page and navigate to the Data tab. In the top ribbon, click Export then CSV. This will download your data as a zip file to your computer. Navigate to your downloads, unzip the folder, and move the survey file to your [Exercise_11](#) folder.

❖ Navigate back to ArcGIS Online and navigate to the Content page. In the top left-hand corner, select New item. Locate your survey CSV file and open it in the File upload pane. Add the survey as a hosted feature layer or table, keep the fields the same, and when you reach the location settings area, change your location settings to None, as our file does not have any location data. Save your table to your [Exercise_11](#) folder as “Tourism survey” and then hit Save.

Export ▾ Open in Map Viewer



File
survey_0.csv

How would you like to add this file?

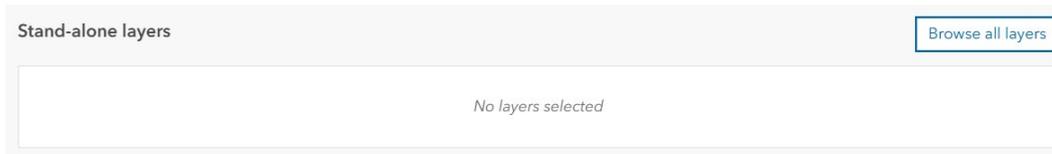
Add survey_0.csv and create a hosted feature layer or table
A CSV file with location information is the data source for a hosted feature layer that displays points on a map. A CSV file without location information displays a table that can be viewed, charted, and joined with other layers.

Location settings

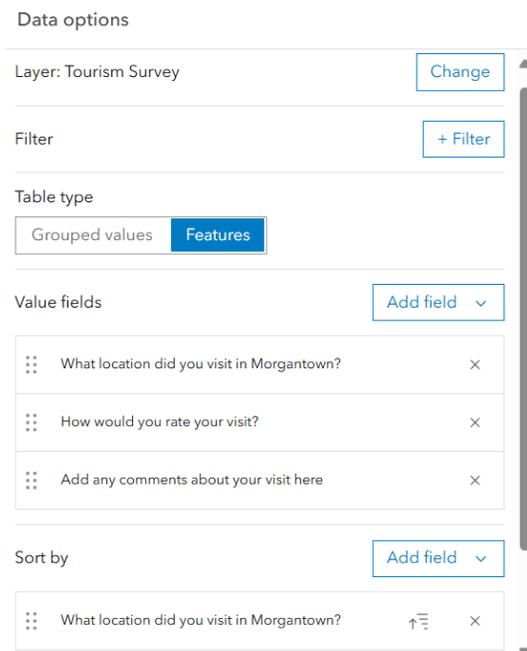
Specify the type of location information the file contains.

None
This CSV contains no location data and will be added as a table

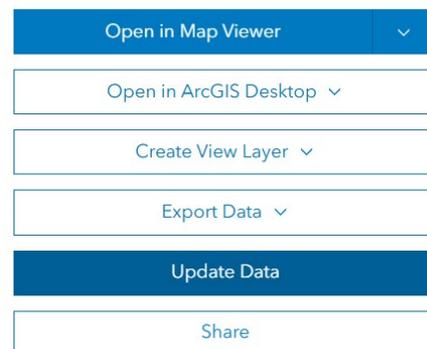
- ❖ Now we can add the table to our Dashboard. Navigate back to your Dashboard tab and hit the Add element Button. Choose the area below your map for your table to appear in. Scroll down until you see the table option. This will open the Select a layer pane. Navigate to the Stand-alone layers section and click Browse all layers. From here, you can select your **Tourism Survey** table.



- ❖ Once you upload your table, you will be presented with options for what data you would like to be present in your table. Change the Table type to Features, under Value Fields add “What location did you visit in Morgantown?”, “How would you rate your visit?” and “Add any comments about your visit here”. This way, only these questions will be displayed on your table. These are the fields most relevant to anyone searching for reviews.
- ❖ Next, have the table Sort by “What location did you visit in Morgantown?” This way, places with the same name will be grouped together.
- ❖ Once you are finished with this, hit Done.

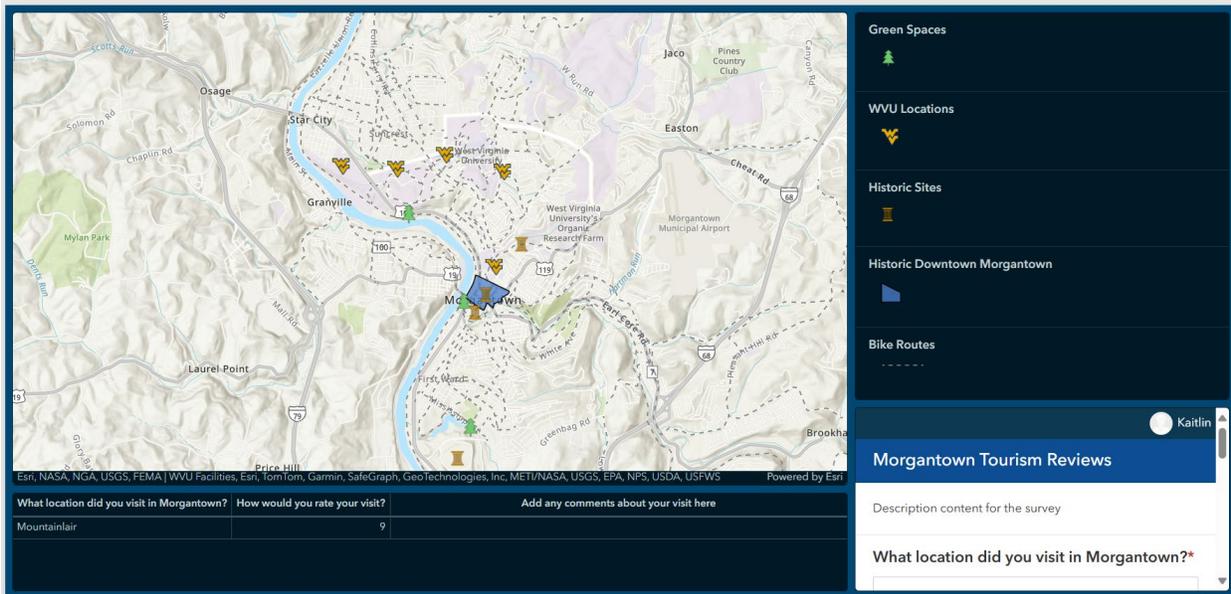


Note: In the future, if you wanted to update your table so that it had the most current review data, you could navigate to Content, select the table, and then choose “Update Data”. You would then be prompted to upload a fresh CSV file, match the new fields to the old ones, and once you finished, anywhere that the table appeared would be updated with the most recent information.



The last thing you will do is resize some of the elements in your Dashboard. When you first add them to the dashboard, all the elements will be sized equally. Hover over the area between your map and legend elements and your cursor should change to the resizing cursor. 

- ❖ When the resizing cursor appears, you can click and drag left and right to make the elements on either side larger and smaller. Drag it to the right so that your map is larger, and your legend and survey are smaller. After you are finished resizing that space, resize the map and review table so that your map gets larger, and the table gets smaller. Now you should have a dashboard that emphasizes the map you made but still allows users to see the other elements.



You have now learned how to make maps in ArcGIS Online and turn them into useful web applications that can be updated over time with new information.

END OF EXERCISE