

Find and Create Spatial Data in AGOL

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Class Page

<http://guides.lib.virginia.edu/gis>

Click **Teaching Resources > Spring 2021 Workshops**

Living Atlas

<https://livingatlas.arcgis.com/>

ArcGIS Online

<https://uvalibrary.maps.arcgis.com/home/>

Create or Login to ArcGIS Online Account

*****If you're not a UVA affiliate, or don't have an Eservices login, please stop here and await further instructions.**

Go to: <https://uvalibrary.maps.arcgis.com/home/signin.html>

- Click **University of Virginia**
- Sign in using your NetBadge credentials.

A blue rectangular button with the text "UNIVERSITY OF VIRGINIA" in white, uppercase letters.

Find Data

1. After logging in, browse to <https://livingatlas.arcgis.com>.
2. Click the **Browse** tab and click **“Search examples”** to see some examples of advanced search tags. Feel free to click some of the examples to see the format.
3. Type “income” into the search bar and hit Enter.

Note: Some of the data results have icons in the bottom left corner. Authoritative data are created and verified by ESRI. Subscriber data require an enterprise AGOL account, and the use of Premium data consumes credits.

1. Scroll down and click the title of **Popular Demographics in the United States** to see the details page.
2. Go back to the Living Atlas browser tab and click the Star icon for **Popular Demographics in the United States (Beta)** to make it a favorite.

3. Type “race” into the search bar and hit Enter. Check the box for **Esri-only content**.
4. Click the three dots on the **ACS Race and Hispanic Origin Variables - Boundaries** dataset and click **Map Viewer**.
5. Type “Charlottesville” into the Find bar and select Charlottesville, VA. Notice that the layer visibility changes as we zoom in. Click **Legend** to see how the data is symbolized.
6. Go back to map Contents. Click **Add > Search for Layers**. Change My Content to **Living Atlas**. Try the “race” search here.
7. Switch from Living Atlas to **My Favorites** to see the favorited dataset. Add that layer to your map.
8. Click the Style button on the Popular Demographics Block Group layer and choose the “2018 Baby Boomer” and “2018 Generation...” attributes. Click “Add Attribute” to add multiple attributes. Choose the Predominant Category style.

Feel free to get familiar with the data categories, search tags, and filtering checkboxes. Note that even though many of the layers are pre-symbolized on certain attributes, there are many more attributes available for visualization and analysis. There is a huge amount of data available, vector and raster, that can be used in your GIS projects.

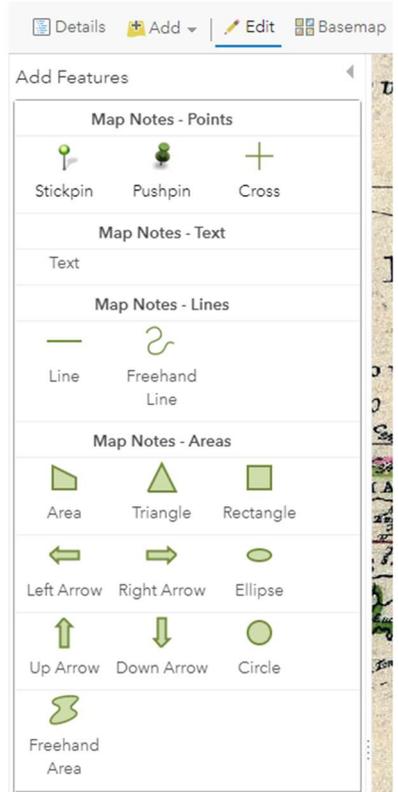
We’ve been limiting our search to Living Atlas and Favorited layers. However, we have the ability search for all public layers in ArcGIS Online. Sometimes it’s useful to start with a broad search and narrow your results down using tags and filtering tools.

9. In Click **Add > Search for Layers**. Change My Content to **ArcGIS Online**.
10. Type “Virginia” into the search box and hit Enter.
11. Click the **Filter** icon and enable **Only show content within map area**. Notice how that decreases the number of results.
12. Click the plus sign next to a layer to view it in your map. Click the minus sign to remove it from your map.
13. Add “owner:UVa_Data” to your “Virginia” search and click Enter.
14. Save the map by clicking **Save > Save As**. Give the map a meaningful name that will make it discoverable to you and potentially others.

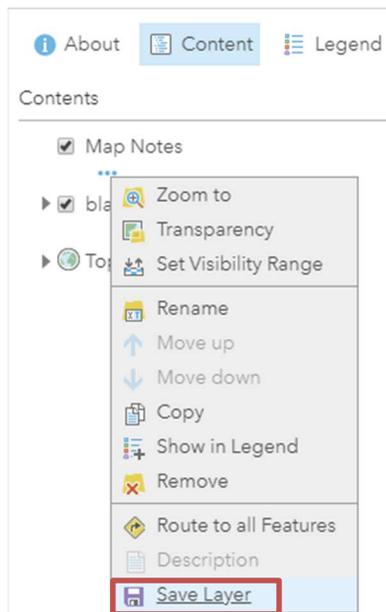
ArcGIS Online requires that at least one tag be applied to saved items, though you can assign as many as you want. Tags are user-specific, but help others find your items. In our case, it might be useful to apply a “GIS Workshop” tag.

Create Data

Sometimes, the data you’re searching for isn’t available, or just doesn’t exit. In those cases, we may need to create our own spatial data. The easiest way to do this is with Map Notes.



1. Add a Map Notes layer by clicking **Add > Add Map Notes**. Give your Map Notes a meaningful name. Like the map, it would be useful to include your name or computing ID in the title. Leave the Template as **Map Notes** and click **Create**.
2. You should now have the **Edit** pane open. If not, click the **Edit** button.
3. Choose a feature type (point, line, area, or text) and a symbol, and begin creating data. If you don’t like the symbols you see, don’t worry, you can change that after you’ve created your feature.
4. When you’re done drawing a feature, click the **Close** button. Your Map Notes layer currently only “lives” in your map. Let’s save it as a layer in your Content so that it can be shared with others.



Close the edit pane by clicking the arrow on the top right or clicking the **Edit** button.

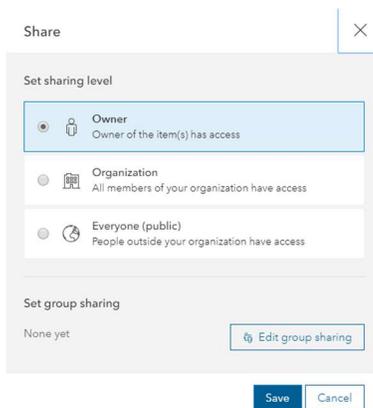
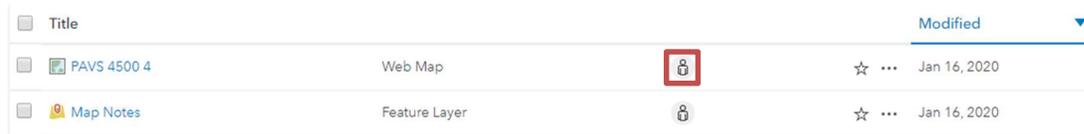
5. In your map Content, hover over the Map Notes layer, click the ellipses below the layer title, and click **Save Layer**. Be sure to include some meaningful tags.
6. To continue adding features, click the **Edit** button.
7. Be sure to save your map often by clicking the **Save** button.

Content and Sharing

1. Click the **Home** pulldown in the top left corner of the page and select **Content**.

Here you will see all your items, including the map and layer you just created. Each item has details and settings that can be accessed by clicking the item title. Here, we can also change the sharing settings of our items to change who can view and access them.

Notice the person icon. That means that only you can access an item.



2. Click the person icon next to your Map Notes layer.

Here, we have the option to share the item with the Organization (UVA), Everyone - which makes the item public - and below that, we can share with groups.

“Hosted” Feature Layers

In saving our Map Notes layer, we’ve created a Feature Layer. This opens more capabilities, but this layer is still somewhat limited. The final operation we can do on the Map Notes layer is to Publish it, creating a Hosted Feature Layer which separates the layer into its individual layers (points, lines, polygons, and text), enables styling and data configurations, and allows us more editing and update controls. Why doesn’t the layer save as a Hosted Feature Layer in the first place? I’ve looked into this and am still not sure!

1. In the **Content** pane, click the Map Notes layer to go to its Item Details page.
2. Click **Publish**. Feel free to change the title and/or tags, then click **Publish**.

It may take some time to publish, but you will be redirected to your new Hosted Feature Layer. Notice the addition of the Data and Visualization tabs for the layer. Feel free to explore these and the Setting tabs to see what capabilities you’ve enabled.

Map Notes are great in their ease of use, particularly for one-off maps and small projects. However, it may make more sense to create your feature layers from scratch. This allows you

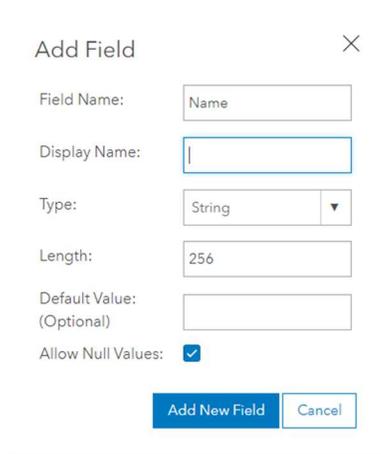
full control over the attributes in your layer and avoids the additional saving steps you may encounter with a Map Notes layer.

3. In the **Content** pane, **Create > Feature Layer**.

Note the large list of templates, each of which has a preset list of attributes already configured. We're going to create our own attributes.

4. Click **Build a Layer**, select **Points**, and click **Create**.
5. Click **Next > Next**, give your layer a name and click **Done**.

It will take some time to build the layer. When complete, you will be taken to the details page of your layer. We want to add attributes to this layer.



6. Click the **Data** tab.
7. Click the hamburger (three stacked lines) and click **Add Field**.
8. Enter “Name” into the **Field Name**, then click **Add New Field**.
9. Click the **Settings** tab and scroll down to the **Editing** section. Note that, by default, editing is enabled on new Feature Layers.
10. Click the **Overview** tab and click **Open in Map Viewer**.
11. On your Map, click the **Edit** tab. You should see the option to create new features in your newly created layer.

As you dive into your GIS work, consider how creating your own Feature Layers might be useful. Think about the attribute information you might want to collect and the settings you may need to apply to ensure clean, accurate tabular data.

Bonus: Living Atlas Apps!

1. Go to the Living Atlas browser tab and click **Apps**.
2. Click the **ArcGIS Vector Tile Style Editor**. Click **View Application > Get Started**.
3. Select **World Topographic Map** and click **Select Style**.
4. In the search box, type “Charlottesville”, choose Charlottesville, VA.
5. Click the color swatch next to **Land** and choose a color from the palette.
6. Click the area on the map representing UVA and choose a color from the palette.
7. Feel free to explore the options for customizing the basemap. When done, click the **Save as** icon. Give the style a meaningful title and click **Save Style**.
8. Open a new browser tab and navigate to <http://uvalibrary.maps.arcgis.com>. Note the new basemap style in your content.

9. Go back to the Living Atlas Apps and click the **World Imagery Wayback App**. Click **View Application**.
10. In the search box, type “Charlottesville”, choose Charlottesville, VA.
11. Check the box for “Only versions with local changes”.
12. Hover over each layer to see if you can find changes over time
13. Click on the map to get information about the imagery.
14. Choose a layer and click the cloud icon to add the layer to the Map Viewer.

15. Go back to the Living Atlas Apps and click the **USGS Historical Topographic Map Explorer** App. In the search box, type “Charlottesville”, choose Charlottesville, VA. Zoom in and click on the Rotunda.
16. In the timeline, click maps of interest. When done, click **Save web map...**