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Dr. Matthew Sisk
Office: Flanner 617
matthew.sisk@nd.edu

Using ArcGIS Online / StoryMaps

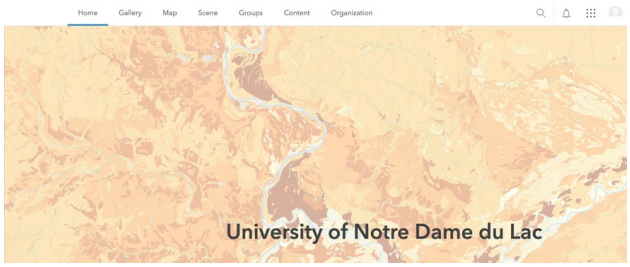
One of the biggest advantages of recent versions of ArcGIS is the resources they have devoted to developing software to share content online. This demo will focus on ArcGIS Online (a cloud-based version of ArcGIS for creating interactive web maps) and ESRI StoryMaps (a tool for creating an interactive digital exhibit containing map data).

I. Sign into the account created for you with ArcGIS Online

a. There is a zip file of some sample data available in the github repository. You should use it for this demo.
b. **Log into ArcGIS Online**
c. You should have received an email with account information about an account linked to the Notre Dame ArcGIS Online account.
d. Create an account using those credentials
    i. If you did not, you can always create a free account from the ArcGIS Online website and then redo it with your Notre Dame account later.

II. Navigation ArcGIS Online

a. When you first log in to ArcGIS online you should see a home screen that looks like this:

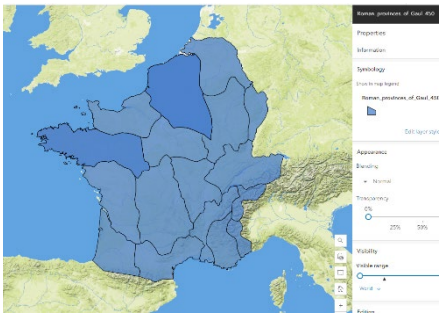


b. The tabs across the top are different ways to interact with the content
    1. **Home**: is this screen
    2. **Gallery**: Will show you all of the maps from your Organization (Notre Dame) that are public
    3. **Map**: Brings up a blank map (or the last one you had open)
    4. **Scene**: Brings up a blank 3D scene (or the last one you had open)
    5. **Groups**: Allows you to share data with particular users in your organization
        i. We will not be using this
    6. **Content**: Is an explorer like menu where you add data to your arcGIS online account or open things you have previously saved
    7. **Organization**: Is information about the users and permission levels for Notre Dame
        i. We will not be using this and if you have an account from your home institution, it may be different

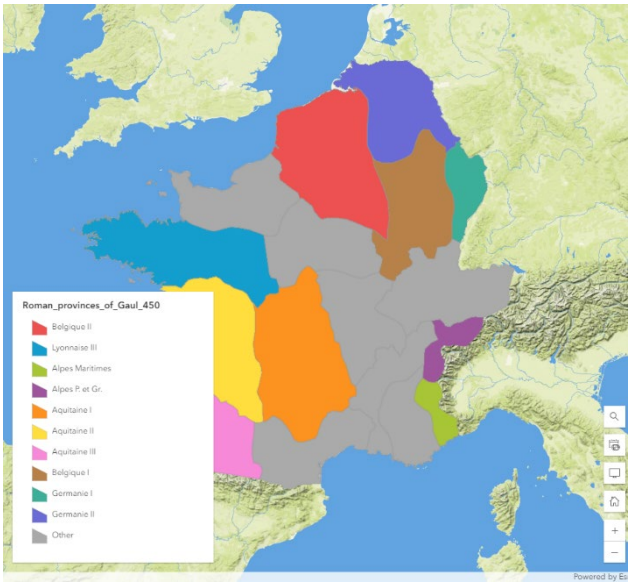
III. Adding your data to ArcGIS Online

a. The most effective way to do this for your tier of account is to start off on the Map tab
    1. For other types of accounts, you can also add data directly from the content tab

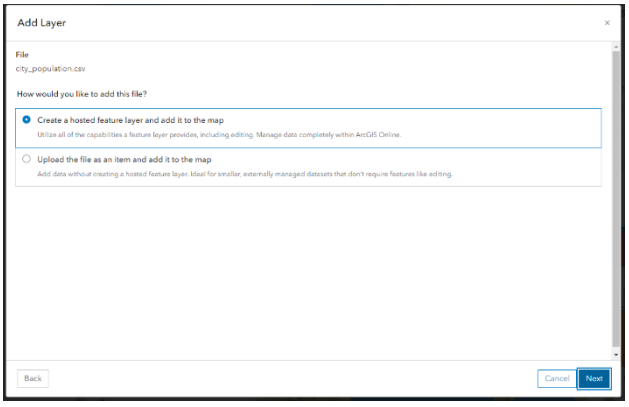
2. You can add many different type of content to ArcGIS Online
3. First, we will add an existing shapefile
    i. This is vector-based data in a spatial file format commonly used in GIS applications
4. From the Map Tab choose **Add** and then "**Add Layer from File**"
5. Choose "Roman_provinces_of_Gaul_450.zip"
    i. This is just a shapefile that has been compressed into a single zip file.
    ii. It will automatically fill in a title
    iii. Then click Add Item.
    iv. It should bring up our new data
    v. Feel free to explore the options a bit



6. Let's try changing how we display the different districts.
    i. The default is currently a single symbology.
    ii. Go to **Styles on the right of the screen**
    iii. Under **Choose Attributes** select **+Field**
    iv. Select **Nom**
    v. You should see we have a new symbology option below
        a. Select **Types (unique symbols)**
    vi. Click **Done**
    vii. You should now have different colored polygons for each Area! This is a more informative way of displaying Polygon data.



b. Now we want to add data that is just from a table
    1. First, we will do this from a list of coordinates,
        i. From the **left side, choose Add** and then "**Add Layer from File**"
        ii. Add **villes.csv**
        iii. This is a repackaged version of the cities data from: https://www.menestrel.fr/?-Ressources-&lang=en#4411
        iv. You will need to specify the coordinates.
c. However we can also add a table of addresses, not coordinates.
    1. This will only work with the professional version of ArcGIS Online
    2. Click Choose File and go to **SouthBendRestaurants.csv**
        a. This is a copy of a Wikipedia table showing populations of European cities during various centuries
        b. Choose the option "**Create a hosted feature and add it to the map**"



c. The next window shows the fields stored in the file and gives the option to change their names and data types.
d. Once you choose it, the software recognizes it as a table and gives you an additional choice to "**Locate Features By**"
    1. This should default to "**Addresses or Places**"
        i. You will need to set each part of the address for the geocoder to use.
        ii. You will want to select "**Location information is in multiple fields**"
            a. City will be "**City**"
            b. County will be "**Country**"
e. Choose Add Item

3. Once it is finished geocoding, it should display the layer
    i. In this case, we want all of our Cities to by symbolized the same way, so we don't need to change the symbology.
        a. However, under symbology you can choose to display the population.

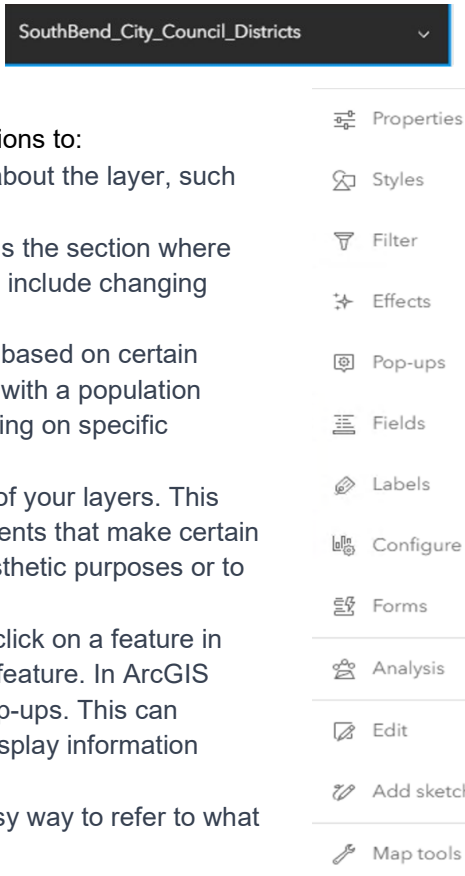
IV. Making Maps with ArcGIS Online.

a. The first thing we want to be able to do is Save our map document.

1. On the left ribbon navigate to the **Save and Open** icon ()
2. Click **Save As**
3. This will create a new window
4. You will need to give it a name and a tag.
5. Maps are, like in the desktop version, saved with the symbology and zoom level

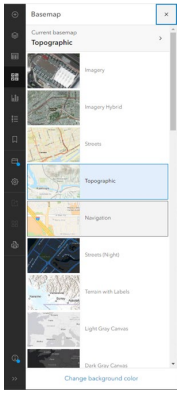
b. Changing settings

1. On the right-hand panel you have a series of options related to a selected layer
    i. To switch between layers, click on the drop-down menu



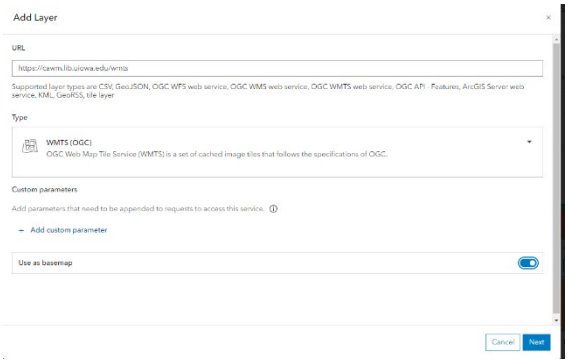
2. These will change depending on the type of data but provides options to:
    i. **Properties:** This section typically includes basic information about the layer, such as its name, source, and a brief description.
    ii. **Styles**: We have worked briefly in this section already, and it is the section where you can change the visual appearance of your layer. This can include changing symbol types, colors, sizes, etc.
    iii. **Filters:** Filters allow you to display only a subset of your data based on certain criteria. For example, you might set a filter to show only cities with a population greater than 100,000. This can be particularly useful for focusing on specific aspects of your data or decluttering your map.
    iv. **Effects:** Effects can be applied to enhance the visual impact of your layers. This could include drop shadows, glow effects, or other enhancements that make certain elements of your map stand out. These are often used for aesthetic purposes or to draw attention to key parts of the map.
    v. **Pop-ups:** Pop-ups are small windows that appear when you click on a feature in your map. They provide more detailed information about that feature. In ArcGIS Online, you can customize the content and layout of these pop-ups. This can include adding text, images, links, and even expressions to display information dynamically based on the data.
    vi. **Fields:** Fields refer to the columns in your dataset, it is an easy way to refer to what you have in your layer.

vii. **Labels:** Labels are text elements that can be added to your map to identify features. They are usually derived from the fields in your dataset.
viii. **Configure charts:** ArcGIS Online allows you to create and add charts to your map, providing a visual representation of your data. These charts can be bar charts, pie charts, line charts, etc.
ix. **Forms:** Forms in ArcGIS Online are used for collecting and editing data. They can be customized to streamline the data entry process and ensure data consistency. You can design forms with specific fields that users fill out when adding or editing features within a layer.
x. **Analysis:** Analysis tools in ArcGIS Online allow you to perform various spatial analyses on your data.
    a. These are mostly better done in ArcGIS Desktop since the account will be charged (via credits) for every analysis.
    b. Our Notre Dame account has a basically unlimited number of credits, but yours in the future may not.
xi. **Edit:** Editing features in ArcGIS Online enables you to modify the geometry or attributes of your data directly within the map.
xii. **Add sketch:** The Add Sketch tool is a feature that allows users to draw shapes or sketch directly on the map. This can be useful for marking areas of interest, drawing attention to specific features, or even adding custom annotations to your map.
xiii. **Map tools:** This is a collection of tools available in ArcGIS Online that enhance the map interaction and functionality. This can include measurement tools, navigation controls, etc.



c. Along the ribbon on the lefthand side, you have the option to change the basemap
    1. Click on the basemap icon ( ) to access the different options.
    2. Some basemaps are better for different purposes.

V. We can also add other basemaps if they are stored properly
    a. For example: the Consortium of Ancient World Mappers maintains a tileserver which allows their maps (which do not contain modern placenames) to be used in many other applications.
    b. To add it, on the left side, choose Add Data -> Add Data from URL and paste in
        1. https://cawm.lib.uiowa.edu/wmts
        2. It should auto-complete everything, but if you tick **Add as basemap** it will make it appear with your basemaps instead of as a layer.
        3. Since this service is not editable, it is probably good to do that.



VI. Adding other data.
    a. During the demonstration we will locate geoJSON data as well as downloading kml files from google mymaps.
    b. These can both be added in the same way.

VII. Sharing Maps and StoryMaps

a. The **Share** icon ( ) located on the lefthand controls all the sharing settings.
b. Once you have saved a map you can choose to make it public or only accessible to a certain group of

users.

1. If you make it available to Everyone, you can also get a link to embed in a website.
2. Otherwise, users will have to log in.

c. This link will bring you to the map how you see it, with all the ESRI branding and a lot of options that might be confusing for the user.

d. On the lefthand ribbon there is a **Create app** button ( ). This is a way to make something more targeted out of your web maps.

1. There are many options in here for creating data collection applications, to simple web apps, to forms and surveys. We will be using **ArcGIS StoryMaps**
2. There are also additional options housed here:
   i. **Instant Apps:** lets you customize your own applications
   ii. **Operations Dashboard**: is a way to make interactive dashboards using real time database
   iii. **Experience Builder**: extends the capabilities of Instant Apps with more customization options
   iv. We are not going to use these during the demo, but feel free to experiment.
3. Choose, "**ArcGIS StoryMaps**"
   i. For examples take a look at:
      a. **https://doc.arcgis.com/en/arcgis-storymaps/gallery/**
   ii. We will cover the basics of StoryMaps here, but there are a lot of other tutorials about creating and designing an effective StoryMap.
      a. https://storymaps.arcgis.com/stories/cea22a609a1d4cccb8d54c650b595bc4
   iii.