EnvSci 360 – Computer and Analytical Cartography
Spring 2017

- Lab 9 -

Exercise 1: Get to know ArcGIS Online with Quick Exercises

The best way to get to know ArcGIS Online is to start using it. The ArcGIS Online quick exercises guide you through meaningful real-world scenarios that let you experience the powerful capabilities of ArcGIS Online for yourself. As you work through the exercises, you'll become familiar with key capabilities and workflows that will both help you be successful in your current work and inspire you to explore ArcGIS Online further on your own.

To start, go to http://doc.arcgis.com/en/arcgis-online/get-started/online-quick-exercises.htm and complete the five exercises. Use your UMB organizational account.

Exercise 2: Making a Cached Map in ArcGIS Online

In this assignment, you will use share an ArcMap document (MXD) at ArcGIS Online and make a web map application (using what you learned in the Quick Exercises).

Step 1: Modify a map document in ArcMap

For this step, as a starting point, use the map you already created for Downtown Pittsfield, Mass. (Lab 5, Exercise 2).

1. Modify the MXD in the following ways:
   - Set the range of scales to match those used by ArcGIS Online, Google Maps, and Bing Maps (see http://desktop.arcgis.com/en/arcmap/latest/map/publish-map-services/designing-a-map-to-overlay-arcgis-online-google-maps-and-bing-maps.htm for details):
     o On the Standard toolbar, click the drop-down list of scales and choose Customize This List.
     o Click Load and choose ArcGIS Online/Bing Maps/Google Maps.
     o Check the box to Only display these scales when zooming.
     o Click OK to apply your changes. You can now see the set of scales used by these popular web mapping services and easily jump between them using the drop-down list or your mouse's scroll wheel or the Fixed Zoom In and Fixed Zoom Out buttons.
   - Set the MXD's default extent to be the downtown Pittsfield area at 1:18,056 so that on the Web this area will be the initial extent instead of the whole state of Massachusetts:
     o Zoom to the extent of the DOT Roads layer, then choose 1:18,056 from the scale dropdown.
     o Right-click the name of the data frame (e.g. "Layers") in the table of contents and choose Properties… > Data Frame tab > Extent Used By Full Extent Command section > click Other > hit Specify Extent button > click Currently Visible Extent > OK > OK.

Now when you hit the 'Full Extent' button (the little globe) on the Tools toolbar you will go to your current extent, not the extent of all layers, and ArcGIS Server will honor this setting.
- Use the Symbol Levels merge and join features of symbol layers for the roads line symbols (Layer Properties > Symbology tab > Advanced > Symbol Levels).
- Set scale range limits for labels and layers
  Tips/suggestions:
  - None of the layers except Massachusetts Towns should draw when zoomed out beyond 1:40,000
  - Labels for Major streets (including route shields), Water, Parks and all building features should appear at 1:20,000 and larger (zoomed in)
  - Show all street labels at 1:10,000 and larger
  - Include multiple streets layers, which turn on and off at different scales, if you want to change the thickness of the lines (for local streets, e.g.) for aesthetic purposes as you zoom in and out. Creating several scale-dependent label classes in your MXD will allow you to control what labels draw at each zoom level in your final web map.

Step 2: Publish your map document as a Tile Layer in ArcGIS Online

Publishing (sharing) your MXD will allow it to be served on the Web as part of ArcGIS Online.

1. First, sign in to ArcGIS Online with your UMB organizational account from File > Sign In…
2. Go to File > Map Document Properties… and fill in all the boxes except for Hyperlink base
3. SAVE your map document
4. Make sure you are in Data View (not Layout View)
5. Choose File > Share As > Service…
6. Click 'Publish a service'; hit Next
7. In the Choose a connection dropdown, select 'My Hosted Services (UMB)'
8. Enter a Service name – use Pittsfield_*YourName* (e.g. Pittsfield_MichaelTrust); hit Continue
9. Click 'Capabilities' on the left and check the box next to Tiled Mapping. This will create a cached map that will preserve the look of your MXD. (Keep Feature Access checked)
10. Click 'Caching' on the left and use the sliders to set the Levels of Detail to 15 to 19.
11. **VERY IMPORTANT:** Click Advanced Settings under Caching on the left and set the Area of interest to cache to be **'Current extent of the map'**. Make sure only the five largest scales are chosen. (Do NOT set the AOI to be Full extent, as this will use too many credits!!)
12. Hit the 'Analyze' button near the top of the window. Fix any Errors (white X in red circle); Warnings may be ignored or fixed if you'd like
13. Hit the 'Publish' button near the top of the window. Click OK to copy data to the server when prompted.
14. Click OK in the Server Publishing Result message box when the service has been published successfully.
15. Check to see if your map service was published successfully by going to http://umb.maps.arcgis.com and look at 'My Content' and view the Tile Layer (hosted) in the Map Viewer. Expand the layer in the Contents pane and enable the pop-ups for the layers.
16. If you don't like the way your map appears online, go back to the MXD, make changes, and share the MXD again, this time overwriting your existing service. Do this until you are satisfied with the map.

Step 3: Create a Web application that displays your map on ArcGIS Online

1. Save your Web Map.
2. Hit Share.
3. Share it with the Organization or Everyone.
4. Click Create a Web App.
5. Choose a Configurable App or try out the Web App Builder.
6. Configure it and view it, making changes as you see fit.