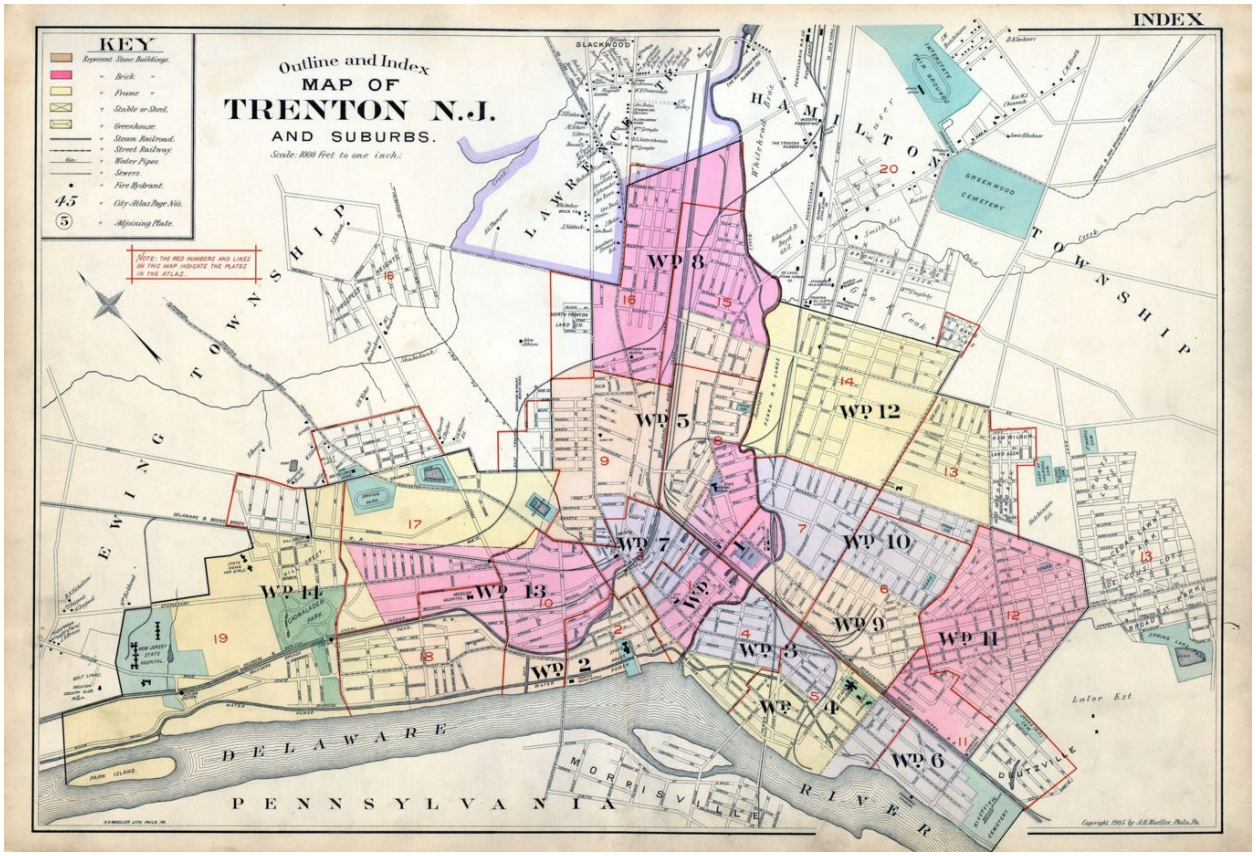
Maps Systems Group

everything you need to know for this project



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IMM 280

INTRODUCTION

This class relies on having an interactive map to display data. During the 2018 fall semester, the three of us experimented with using arcGIS, GoogleMaps, HTML, Javascript and CSS in order to create an interface for this kiosk. We also worked with other groups, coordinating and setting up systems for them to upload what they had done. Not everything we tried worked out, and some things broke unexpectedly, however, we did learn a lot and there should be a straight path forward as the project continues.

WHAT WE TRIED

Our group began this semester researching the arcGIS system. Once we were able to use it, we began experimenting with Comma Separated Values (CSVs) as a way to store and upload data. We were able to do this for a short time, however, adding additional columns proved fatal, and while the Google Sheet remains an important collection, it no longer updates past the initial rows.

During the initial period monitoring the CSV, we also began working on the mockup website in order to determine how we wanted to style the arcGIS document for our server. Getting the arcGIS was more difficult than anticipated. While Ryan focused on that and created a guide for the back-end, Miles worked on styling the mockup website as a prototype, and Victoria began using Google Maps as the basis for a second attempt. Victoria also used Sketch and Google Maps in order to create our final prototype to display at the end of the semester.

From our research and attempts, we have compiled the pros and cons of each system:

- **arcGIS**
    - **Good things:** Easy-to-understand upload process
    - **Bad things:** Hard to style, initially difficult to upload to TCNJ, most of the code is always hidden from users, making it difficult to troubleshoot.
- **Google Maps**
    - **Good things:** More customizable, easier to work with directly, Allows for 3D street view feature of google maps
    - **Bad things:** Requires more coding to create an CSV parser or someway to dynamically add pins and content.

- **Website**
    - **Good things**: Extremely customizable and very easy
    - **Bad things:** Our prototype did not use a map as the backing, so it would not be able to use GPS coordinate. Would need a lot of GUI or a javascript CSV for Laura and her staff to update it.
- **Comma Separated Values (in arcGIS)**
    - **Good things:** Extremely easy to understand, Laura and her staff would be able to do it (we checked!) Every system we use can support using them. Should update pins directly to any system.
    - **Bad things:** When it broke on arcGIS, it broke so strangely that even restoring it to the version before students added work could not fix it. There is a small amount of research involved in before using them.

THEORETICAL PLAN FOR A FUTURE GROUP

WEEK	WHAT YOU NEED TO DO	IMPORTANT WISDOM
Week 1	Assign a member to be a **liaison** with the other groups. **Read** over the issues we had with arcGIS and GoogleMaps, **and look at our code.**	
Week 2	**Decide** between using **GoogleMaps** and **arcGIS**. This will be the foundation of your project, so once you pick, do not work with the other system.	You are not responsible for pinning a map as a background image. That is for the map group. Give them the documentation for whatever system you have chosen.
Week 3	On your own, **upload** at each type of media format to your system. Read about CSVs, and what we learned.	
Week 4	**Determine** if you are going to use CSVs or manual uploads for the project. Have your liaison work with the other groups and **inform** them of the process you choose.	If you choose to have a manual upload process (using javascript or something else) provide visual instructions for Laura and her staff.

CURRENT REPOSITORIES

We made many different prototypes this semester.

- arcGIS: “arcGIS Map Playground” includes most of our content. The CSV we used for it is here (note - it currently does not work due to the extra categories): https://docs.google.com/spreadsheets/d/1U19ez5MsZmtzSjR88lWMyqh7lyNXwxW3rkCmfZ2kP9I/edit#gid=2047296637
- Kiosk Mockup with Google Maps- https://github.com/greenv2/Trentoniana.git
    - This also contains our prototype website without Google Maps.
- Sketch Visual Prototype - https://sketch.cloud/s/2xpJe

OTHER CHALLENGES

Pinning a map to any of the systems is extremely hard. On arcGIS, three groups worked on it at different times, and we all struggled.

There are a lot of different ways to create this kiosk, and there is no definitive ‘best’ solution. The most important thing is to pick your method early, and spend your time developing it from there.

ABOUT EACH MEMBER

As a whole, the arcGIS group was very collaborative. We often did independent research on the same topics to discuss in class, and whenever possible we worked with the other groups to inform them about what was possible.

Ryan Anderson

Major: Computer Science

Minor: Interactive Multimedia

Role: Worked on a lot of back-end development and research for arcGIS. Created the guide on bringing arcGIS onto the TCNJ servers, as well as how to transfer files through the command line in general. Helped monitor Google sheet where other groups were to upload the things they produced and provided tech support as needed.

Victoria Green

Major: Computer Science

Minor: Interactive Multimedia

Role: Worked on the website, Sketch Visual Mockup, and Google Maps prototype. Created Github Repository with the current kiosk prototype and arcgis attempts. Added some of the other groups content into the prototype.

Miles Cumiskey

Major: Interactive Multimedia

Role: Acted as a liaison and organized people, worked with the other groups, and did research for the project. Created and monitored our CSV as people uploaded their content, and attempted to fix it when it broke. Also worked on the mockup website, creating the title page and fake sections for the demo.

OTHER RESOURCES

- Using CSVs in arcGIS: https://www.esri.com/arcgis-blog/products/arcgis-online/uncategorized/create-a-story-map-tour-from-a-google-sheet/?rmedium=redirect&rsource=/esri/arcgis/2015/08/12/create-a-map-tour-from-a-google-sheet
- Google Maps Links: https://developers.google.com/maps/documentation/javascript/examples/

  https://doc.arcgis.com/en/arcgis-online/analyze/overlay-layers.htm

- Server Info for arcGIS (or general tcnj hosting)

```
Ryans-MacBook-Pro-2:~ ryananderson$ sftp storymap_admin@storymap.immtcnj.com
The authenticity of host 'storymap.immtcnj.com (64.111.127.171)' can't be established.
ECDSA key fingerprint is SHA256:IXJO45bdDVXNG4zvI96jhA08lOwb5BCUjHen3VyvkK4.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'storymap.immtcnj.com,64.111.127.171' (ECDSA) to the list of known hosts.
storymap_admin@storymap.immtcnj.com's password:
Connected to storymap.immtcnj.com.
sftp> ls
Maildir                  logs                     storymap.immtcnj.com
sftp> cd storymap.immtcnj.com
sftp> ls
favicon.gif         favicon.ico         quickstart.html     trentoniana
sftp> cd trentoniana
sftp> ls
sftp> put nameOfUpload.ext
```

1. sftp storymap_admin@storymap.immtcnj.com
2. o (If it states that the authenticity of host can't be established and asks if you want to continue connecting, type yes)
3. enter password - w*dUd-vp (*note - you wont be able to see what you're typing here)
4. ls - (to see a list of subdirectories in the current folder you're in)
5. cd storymap.immtcnj.com
6. ls
7. cd trentoniana
8. put nameOfUpload.ext - (change 'nameOfUpload.ext' to the correct name and extension of the thing you're uploading to the server)
9. quit - (type this to exit the server and sftp mode)

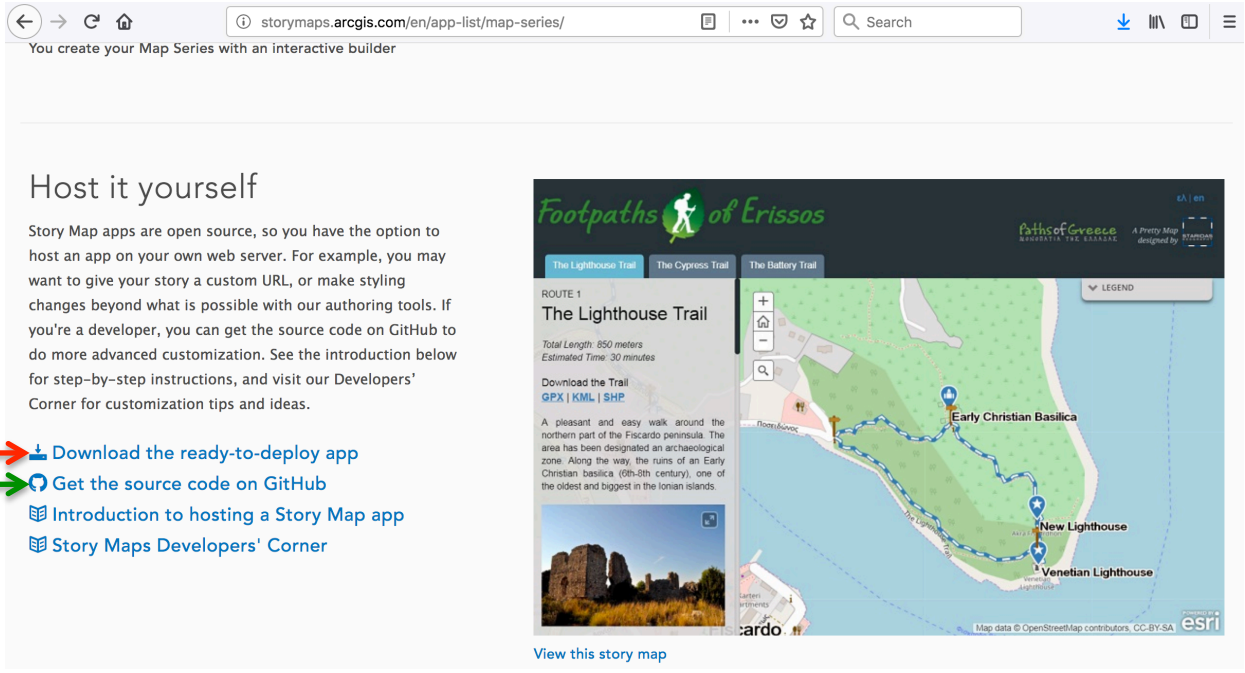
- Instructions for downloading an arcGIS map and uploading it to our server are attached below.

Downloading a Map and Uploading to our Server.

The general process is to download the code for the base app (NOT OUR ACTUAL MAP) from ArcGIS/Esri, change the code to point to our map that is created and hosted on ArcGIS, and upload that code to our server.

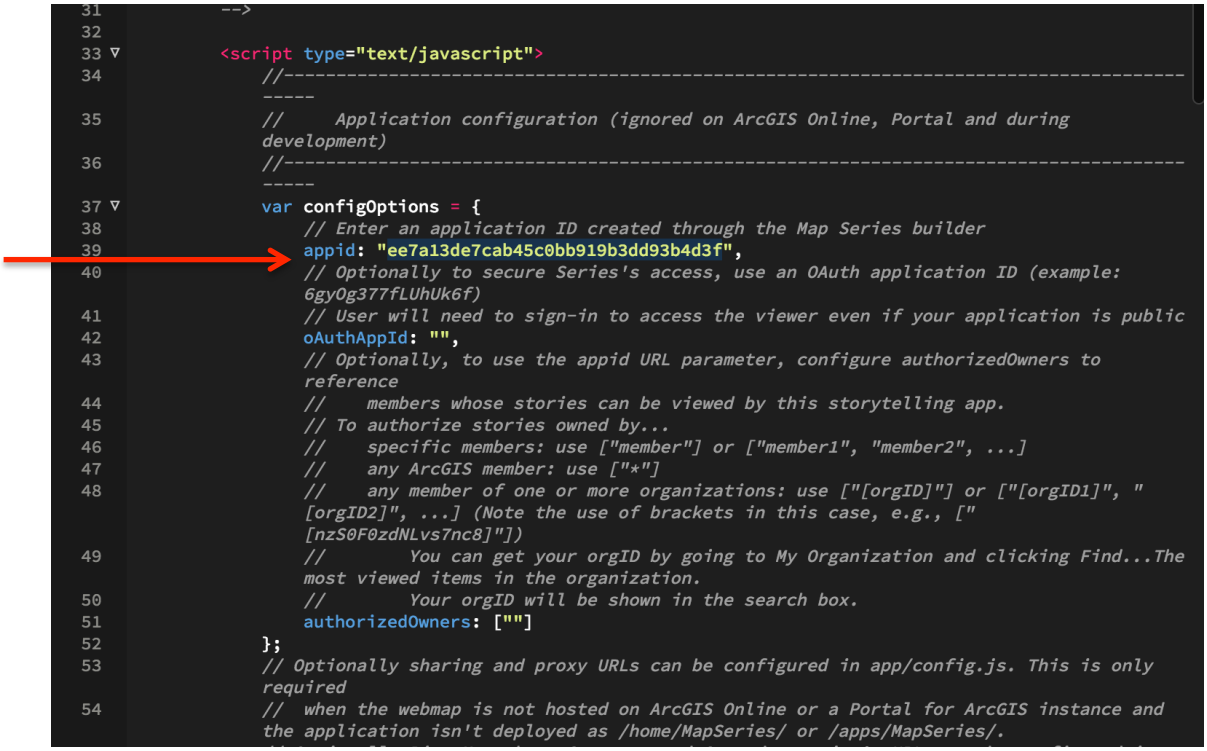
- Download the **compiled** code if you only want to make style changes to the map we created on ArcGIS.
- Download the **source** code if you want to make actual customization modifications to the map app (JavaScript, etc.)

  (see screenshot below for example of Map Series App)



- In the index.html file, add our map's appid between the quotation marks in the configOptions section. Our map's appid can be found in its url on the ArcGIS website.

  (see screenshot below for example of index.html)



```
-->

<script type="text/javascript">
    //--------------------------------------------------------------------------------------
    -----
    //     Application configuration (ignored on ArcGIS Online, Portal and during
    development)
    //--------------------------------------------------------------------------------------
    -----
    var configOptions = {
        // Enter an application ID created through the Map Series builder
        appid: "ee7a13de7cab45c0bb919b3dd93b4d3f",
        // Optionally to secure Series's access, use an OAuth application ID (example:
        6gyOg377fLUhUk6f)
        // User will need to sign-in to access the viewer even if your application is public
        oAuthAppId: "",
        // Optionally, to use the appid URL parameter, configure authorizedOwners to
        reference
        //    members whose stories can be viewed by this storytelling app.
        // To authorize stories owned by...
        //    specific members: use ["member"] or ["member1", "member2", ...]
        //    any ArcGIS member: use ["*"]
        //    any member of one or more organizations: use ["[orgID]"] or ["[orgID1]", "
        [orgID2]", ...] (Note the use of brackets in this case, e.g., ["
        [nzS0F0zdNLvs7nc8]"])
        //        You can get your orgID by going to My Organization and clicking Find...The
        most viewed items in the organization.
        //        Your orgID will be shown in the search box.
        authorizedOwners: [""]
    };
    // Optionally sharing and proxy URLs can be configured in app/config.js. This is only
    required
    //  when the webmap is not hosted on ArcGIS Online or a Portal for ArcGIS instance and
    the application isn't deployed as /home/MapSeries/ or /apps/MapSeries/.
```

- After editing this index.html file, upload the entire folder for the app (this includes the now edited index.html file) to our server using either the sftp terminal process as described in the "How to Upload to IMM Storymap Server" file on basecamp, or by using a sftp GUI program to transfer the files (such as Cyberduck).
- The base app code should now be stored on our server and should point to our actual map's appid, which will cause it to load our map when you navigate to this server in a web browser.**

**Note that while the app is uploaded to our server now, it is still in development mode in this instance and so, it won't load the specified appid as is. You'll have to specify the appid within the url itself, as shown in the url below. This url shows the test map that is uploaded currently on our server, navigate to it to view for yourself. (test app displaying on server as of 12/2/18 – R.A.). This shouldn't be needed when deployed in production mode.

http://storymap.immtcnj.com/trentoniana/storymap-series-master/src/index.html?appid=ee7a13de7cab45c0bb919b3dd93b4d3f