Opportunity Hack 2017: National Center for Missing and Exploited Children Documentation

Application Explanation

- "Main Control" Tab
    - This tab contains the ability to select which incidents are visible on the map. Attempted kidnappings are blue, and missing person cases are red.
    - The "reset" button returns the map to its original state and clears all the filters.
    - The download buttons allow the user to download all of the information (in a .csv file) given for each node shown on the map for whatever filters they currently have active. One button downloads for kidnapping cases, and the other for missing person cases.
- "Both Sets Data" Tab
    - This allows filtering for characteristics that both of the data sets have in common.
    - Whatever filters are used here will affect every node on the map (blue and red).
- "Incidents Only Data" Tab
    - This tab allows filtering via the additional characteristics that only the kidnapping incidents data set has.
    - Only the blue nodes will be affected by these filters.

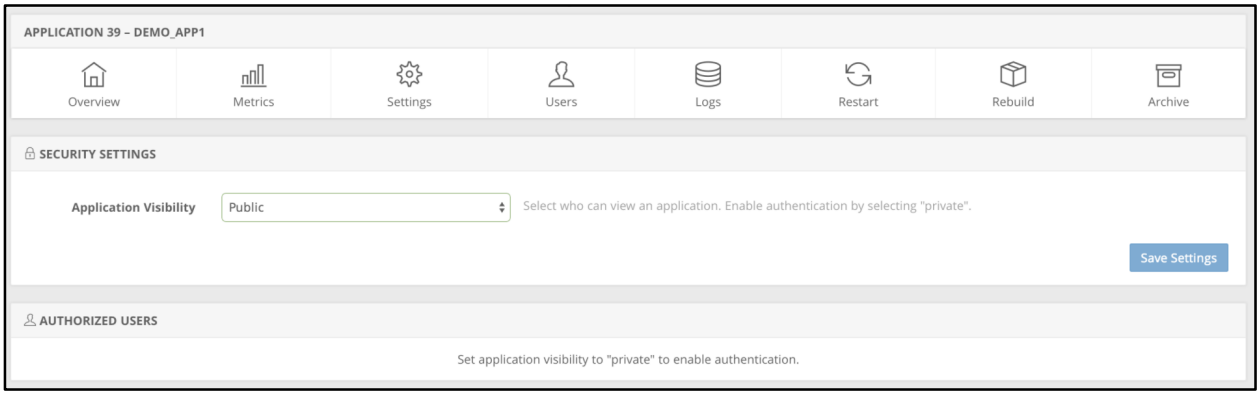
Application Tips

- If the application zooms out far beyond the United States, this means that there were no data entries for the filters specified by the user.
- Pinch-to-zoom on the map is enabled on all touchscreen devices.
- Ensure that every spreadsheet is in the same directory as the "server.R" and "ui.R" files.
- Click or tap on any node on the map to view information about that incident.

Hosting Solutions

Shinyapps.io

Shinyapps.io is one of the platform methods used to host the web application. It offers several useful features including authentication enablement and visibility settings:



Each user will receive an email from shinyapps.io with an invitation to view the application, and can be authorized via Google, Github, or shinyapps.io verification methods. Only users with valid login credentials will be able to login.

By default, the free version of shinyapps.io is restricted to public visibility, and private access can be added as an option in any of the paid versions.

Reference:

https://www.rstudio.com/products/shinyapps-io-authentication-authorization/

Amazon Web Services (AWS)

Amazon Web Services (AWS) is Amazon's cloud computing solution. Using AWS has several benefits including low operation cost, low data storage and extraction cost, and high system accessibility.

AWS uses the same platform as shinyapps.io however, on Amazon all of the services are managed by the hosting organization. AWS offers a Ubuntu disk image in the free category, Ubuntu 16.0.4 that is able to run RStudio, RStudio Server, and Shiny Server. Once all three have been configured and are active on the Ubuntu server users will be able to access the application via a web browser.

Refrences: https://aws.amazon.com/

Auth0

Auth0 was another solution we looked into, it provides complex and large-scale identity use cases and secure logins. Upon setting up an account, it gives the user a 21-day developer edition (normally $13/month) for free, and the preferences will default to the free version after this period. Since there were some important features in the developer edition that would have been good to have in the future, such as account linking and role management. This would be used in addition to AWS if authentication was needed that is not provided by the version of Shiny Server available outside of Shinyapps.io

Reference: https://auth0.com/pricing

Amazon Web Services (AWS) Storage

Amazon Web Services (AWS) provides several types of cloud storage to host information and applications. A few of these types of data are S3, Glacier, and EFS (Elastic File System). These storage types vary in speeds and size for example; S3 offer Standard Storage for $0.023 per GB, Standard Infrequent Access for $0.0125 per GB, and Glacier for $0.004 per GB.

Reference: https://aws.amazon.com/s3/pricing/

Local Storage

The last option for hosting your application is to host it on a Ubuntu server in NCMEC's data center. This can be a low cost solution that can be added to a pre existing datacenter. NCMEC will need an image of Ubuntu 16.0.4 server that is able to support RStudio, RStudio Server, and Shiny Server.

Links

Ubuntu Server 16.04 download - http://releases.ubuntu.com/16.04/

RStudio Install Instructions - https://www.rstudio.com/products/rstudio/download-server/

RStudio Shiny Server Instructions -
https://www.rstudio.com/products/shiny/download-server/