

INTRODUCTION

Our Asset Security Scanner is used to display all public facing devices on network. By Providing any number of IP addresses, an API connection to Censys allows results to be stored in a local database and displayed on created dashboards through Grafana.

Roles:

- Eric – Infrastructure Engineer
- Jalan – Database Administrator
- JT – Software Engineer
- Tanner – Software Engineer
- Tim – Grafana Administrator
- Drew – Web Developer

PROBLEM STATEMENT

Assets are being deployed and exposed to the internet unintentionally and/or without IT knowledge, exposing companies to hackers and malicious actors.

Customers

- Trine University
- Texas A&M
- IN.gov



DESIGN CONCEPTS

The design of this application starts with a web UI that allows the user to input Censys credentials and select what IP addresses to scan. After the scan is prepared and executed, a custom python application calls the Censys API and queries the scan. It then stores the data in database that is displayed through a Grafana instance.

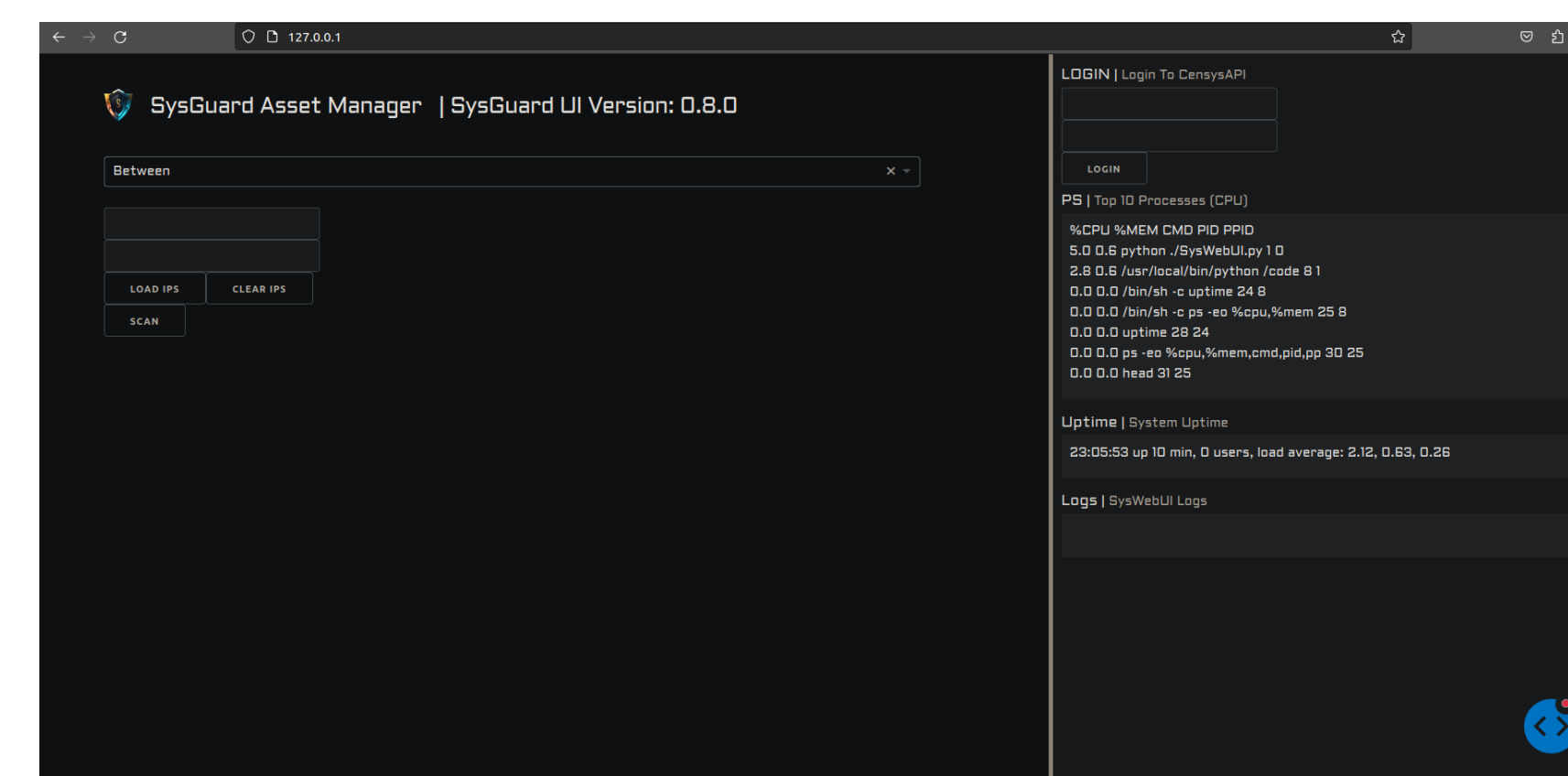
The database features two tables that house different information. Once the scan is finished, a set of SQL Views are generated with Grafana, and the data is displayed through Grafana dashboards

TECH STACK

- Application
 - Python
 - Censys Library
 - Dash
- Database
 - MYSQL
 - Grafana
- Infrastructure
 - ESXI Hypervisor
 - Ubuntu Server OS
 - Docker Containers

FINAL DESIGN

Users interface with this application through a web UI that allows the user to input IP addresses individually, as a network, or from a file. After the scan is executed, a custom python application calls the Censys API and inputs the data into a MySQL database. A Grafana instance displays the data comprehensively on a webpage that the user is redirected to after the scan is run.



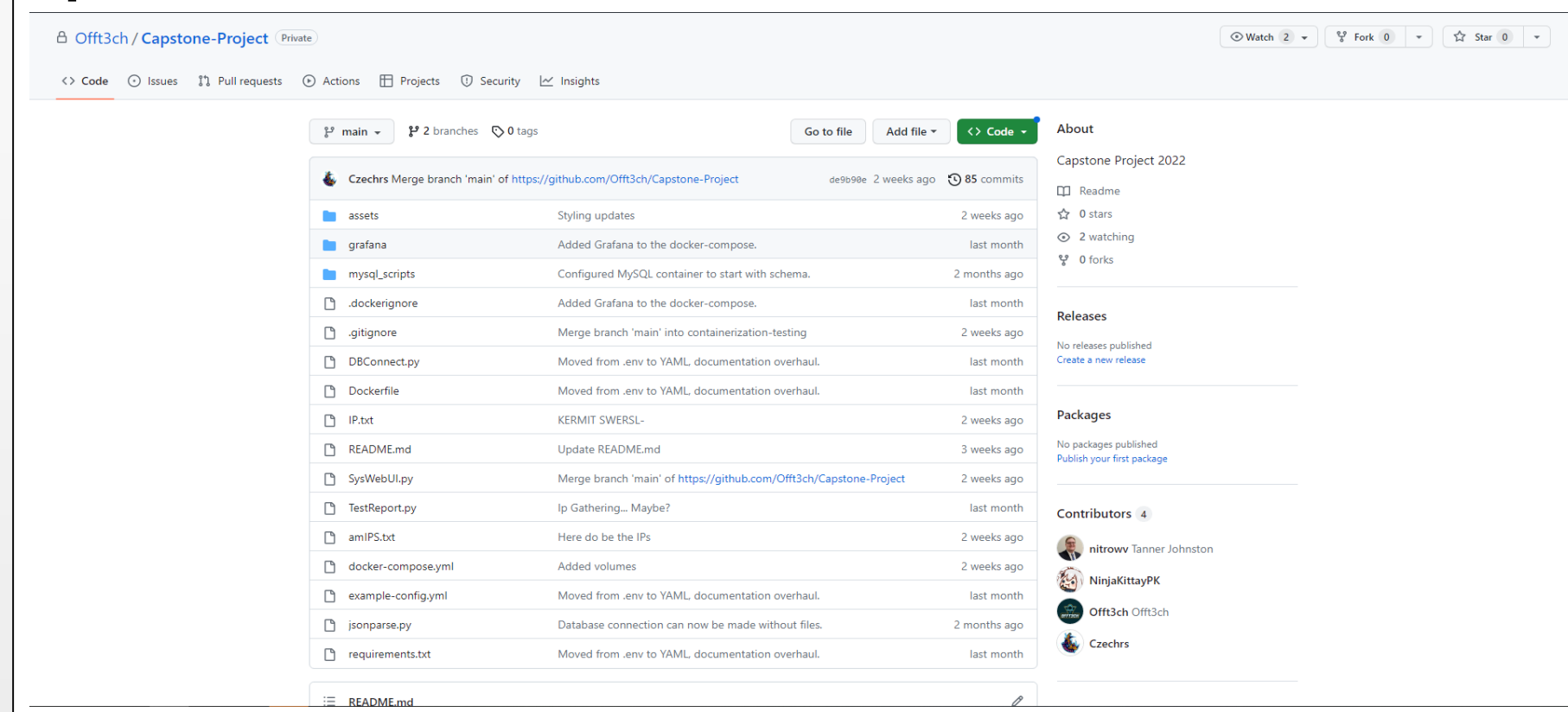
FUTURE WORK

After publication, the group would like to add features and future improvements.

- Future Items
- Custom Highlighting options for returned data
 - General Remediation Steps
 - Customized dashboards
 - Ability to handle larger datasets

CONCLUSION

In finalizing the work for this project, the team plans to make all project files and documentation on GitHub public.



LESSONS LEARNED

Over the duration of this capstone project, the following lessons were learned

- Development of dashboards in Grafana
- Management of MySQL server and connecting to applications via queries
- Usage of the Censys python libraries and API

ACKNOWLEDGEMENTS

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