

A blue door is set into a dark, textured wall. The door has a silver handle and three silver bolts on the left side. A shadow of a person with their arms outstretched is cast onto the door. A blue rectangular overlay is on the right side of the image, containing white text.

Data Control/Security [using psychopg2]

Sean Davern

Motivation

- Working with Page Ahead – Children's Literacy Program





Motivation

- Working with Page Ahead – Children’s Literacy Program
- Page Ahead is bound by a Data Sharing Agreement

COMMUNITY BASED
ORGANIZATION CUSTOM DATA
SHARING AGREEMENT BETWEEN
SEATTLE SCHOOL DISTRICT NO. 1
AND
PAGE AHEAD

This Data Sharing Agreement (“DSA”) is entered into between Seattle School District No. 1, a Washington municipal corporation (“District”) and (“Requestor”), a community based organization that provides literacy services to District students. This contract has the following overriding goals:

1. Preserving the anonymity of student identities, through the use of proxy identifiers, including assurance that identifiable student data is not released to third parties. Student confidentiality is protected via proxy identifiers that provide the Requestor information for analysis based on



Motivation

- Working with Page Ahead – Children’s Literacy Program
- Page Ahead is bound by a Data Sharing Agreement
- I’m bound by a Data Sharing Agreement with Page Ahead

EXHIBIT A: SEATTLE PUBLIC SCHOOLS

Affidavit of Nondisclosure

Sean Davern

Volunteer

Name

Title

Page Ahead Children's Literacy Program

Organization / Employer

I, Sean Davern, a volunteer of Page Ahead,
represent that I am authorized to access the District’s data because I either provide direct
services to District students or have been tasked with analyzing the data.

I have been made aware of the governing Data Sharing Agreement between the District and

A blue door with a white handle and a shadow of a person reaching for it.

Scenario Considerations

- Data at rest
 - Google, AWS and on my computer
 - GitHub (use .gitignore files)
 - In Jupyter Notebooks
- Data in transfer
 - Google Drive to my computer (Use HTTPS)
 - my computer to AWS (Use scp)
 - Jupyter Notebook and AWS (psycopg)



psycopg2

- The most popular Postgres adapter
- Wrapper for [libpq](#)

```
import psycopg2 as pg
connection_args = {
    'host': '54.218.1.211',
    'user': 'ubuntu',
    'dbname': 'postgres',
    'port': 5432
}
connection = pg.connect(**connection_args)
```

- Is it secure?



Live Demo



Connection sslmode

sslmode

This option determines whether or with what priority a secure SSL TCP/IP connection will be negotiated with the server. There are six modes:

disable

only try a non-SSL connection

allow

first try a non-SSL connection; if that fails, try an SSL connection

prefer (default)

first try an SSL connection; if that fails, try a non-SSL connection

require

only try an SSL connection. If a root CA file is present, verify the certificate in the same way as if `verify-ca` was specified

verify-ca

only try an SSL connection, and verify that the server certificate is issued by a trusted certificate authority (CA)

verify-full

only try an SSL connection, verify that the server certificate is issued by a trusted CA and that the requested server host name matches that in the certificate

A blue door with a white handle and a shadow of a hand reaching for it.

Conclusion

Is psycopg2 secure?

- It **DEPENDS!** It **CAN** be!
- **SPECIFY** and **VERIFY** if it's important!



Questions?



Appendix

Data-in-motion encryption

