

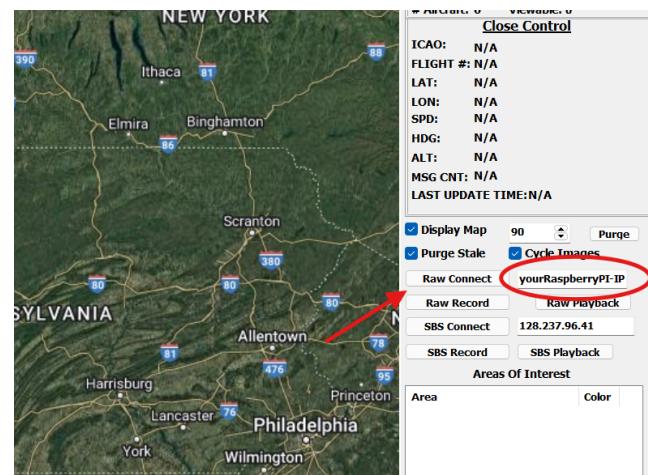
# Pulling and Pushing Message Data

Before you begin with this document, ensure that you have walked through the following documents:

- PI\_Setup
- ADS-B Hub Account Set Up
- BigQuery Setup

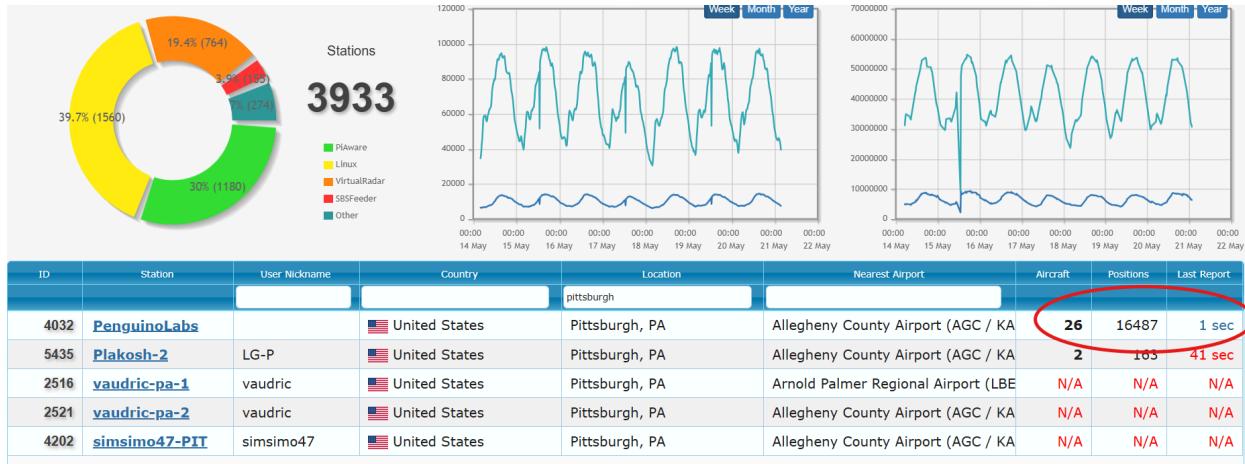
## Retrieving ADS-B Message Data from the Pi

- Ensure the Raspberry Pi has the SDR with Antenna plugged into the USB port.
- Power on the Raspberry Pi.
- Ensure the Raspberry Pi and the PC running the Remote User Interface are on the same local Wifi network (e.g., the PC mobile hotspot).
- SSH into the Raspberry Pi. Run the dump1090.
  - cd dump1090/
  - sudo ./dump1090 --interactive
- Start the Remote User Interface
  - PATH\LG\ADS-B-Display\Win64\Release\ADS-B-Display.exe
- Enter the Raspberry Pi IP address
  - This is the same IP used to SSH into the Raspberry Pi
- Click Raw Connect
- Enjoy your local tracks

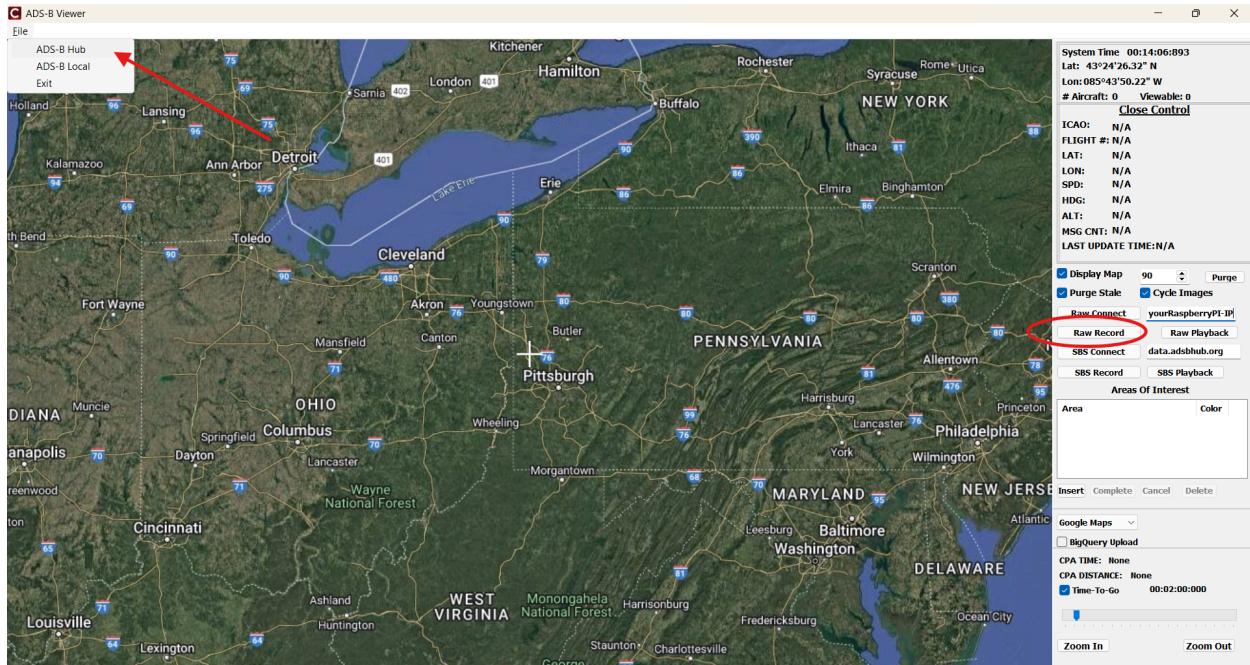


# Retrieving Data from [ADSBHub.org](https://adsbhub.org)

- Follow the previous steps to retrieve data from the Raspberry Pi
- Open another terminal in the Raspberry Pi via SSH
  - cd /usr/bin/
  - sudo [adsbhub.sh](#)
- Verify that your station is pushing ADS-B data to ADSBHub.org



- On the upper left corner of the remote user interface, select File.
  - Select ADS-B Hub
  - Click Raw Connect

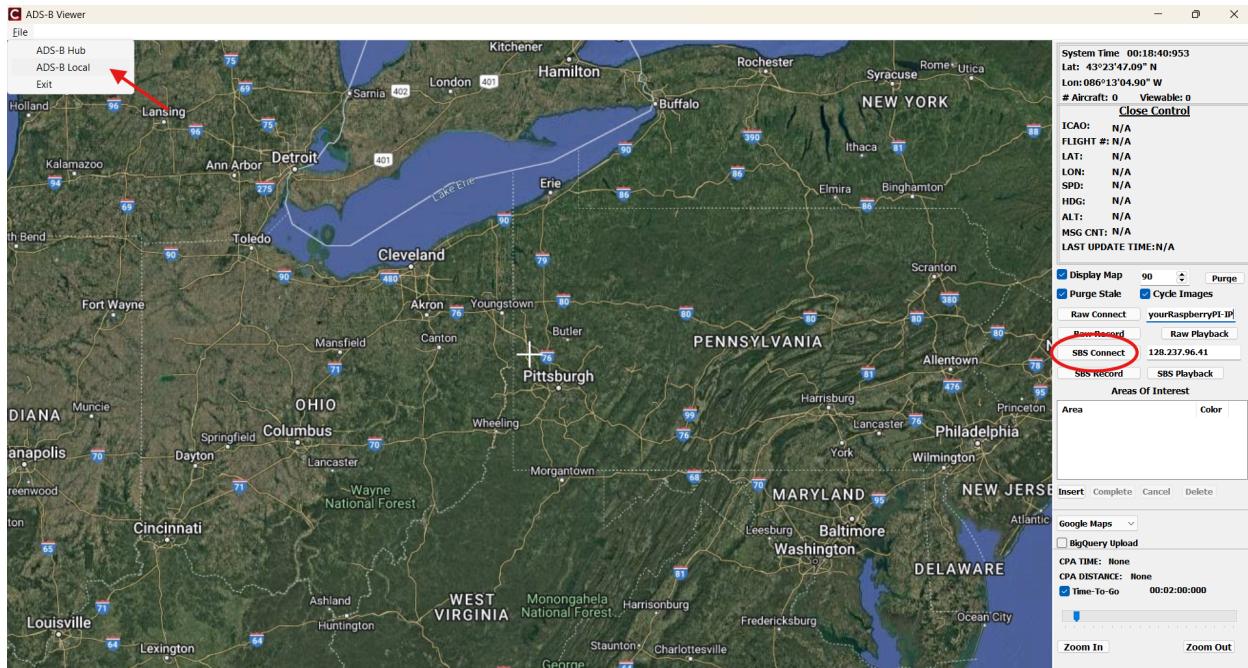


- Enjoy your community tracks.

# Retrieving Data from a Solvit Server

Note: This service may not be available for the duration of the course.

- On the upper left corner of the remote user interface, select File.
  - Select ADS-B Local
- Click Raw Connect

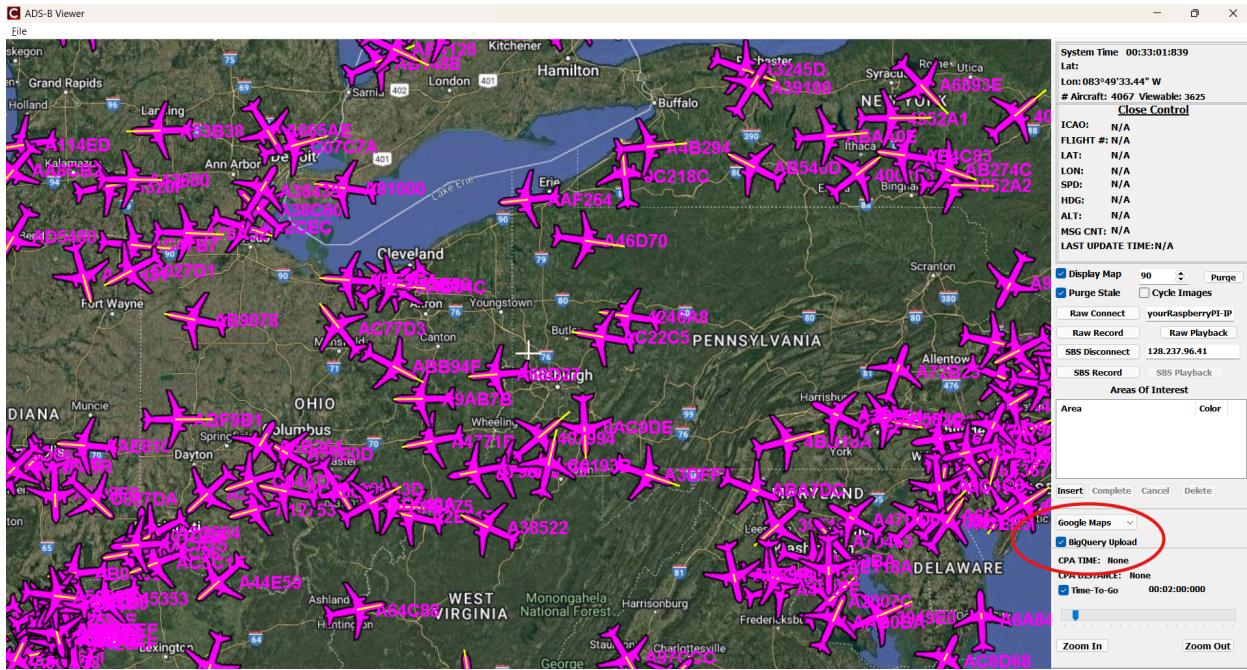


- Enjoy the tracks.

# Uploading ADS-B Message Data to Big Query

- Verify that the BigQuery table is established with the correct schema.
- Verify that the service account JSON key is in the right directory
  - PATH\LG\ADS-B-Display\BigQuery
- Verify that your PC has Python, PIP, and google-cloud-bigquery installed
  - <https://www.python.org/downloads/>
  - <https://pip.pypa.io/en/stable/installation/>
  - <https://pypi.org/project/google-cloud-bigquery/>

- ☐ While retrieving the data using any of the three messages above, click the BigQuery upload button:



- ☐ If successful uploading, a notable beep will occur periodically to indicate a batch load has been successfully uploaded.
- ☐ Check the BigQuery Table to confirm that the data was uploaded successfully. Hint: Select the “Refresh” button to update the screen.

The screenshot shows a table with columns for Schema, Details, Preview, Table Explorer, Insights, Lineage, Data Profile, and Data Quality. The 'Preview' tab is selected, showing a list of 26 rows of flight data. The 'BigQuery Upload' checkbox is checked and highlighted with a red circle. The 'Refresh' button in the top right corner is also circled in red.

Schema	Details	Preview	Table Explorer	Insights	Lineage	Data Profile	Data Quality
Row	Message Type	Transmission To	SessionID	AircraftID	Hexident	FlightID	Date_MSG_Gen
1	MSG	1	0	0	E80452		0 2025-05-21
2	MSG	3	0	0	E8040C		0 2025-05-21
3	MSG	3	0	0	E80452		0 2025-05-21
4	MSG	4	0	0	E8040C		0 2025-05-21
5	MSG	4	0	0	E80452		0 2025-05-21
6	MSG	1	0	0	6A145		0 2025-05-21
7	MSG	1	0	0	151DDF		0 2025-05-21
8	MSG	1	0	0	152066		0 2025-05-21
9	MSG	1	0	0	346188		0 2025-05-21
10	MSG	1	0	0	396445		0 2025-05-21
11	MSG	1	0	0	39644D		0 2025-05-21
12	MSG	1	0	0	3986E7		0 2025-05-21
13	MSG	1	0	0	3991E3		0 2025-05-21
14	MSG	1	0	0	39E5C4		0 2025-05-21
15	MSG	1	0	0	3C6429		0 2025-05-21
16	MSG	1	0	0	3C6441		0 2025-05-21
17	MSG	1	0	0	3C6759		0 2025-05-21
18	MSG	1	0	0	3C70C1		0 2025-05-21
19	MSG	1	0	0	3C743A		0 2025-05-21
20	MSG	1	0	0	440B01		0 2025-05-21
21	MSG	1	0	0	4785BF		0 2025-05-21
22	MSG	1	0	0	47B1DC		0 2025-05-21
23	MSG	1	0	0	489226		0 2025-05-21
24	MSG	1	0	0	48C239		0 2025-05-21
25	MSG	1	0	0	48C058		0 2025-05-21
26	MSG	1	0	0	490307		0 2025-05-21