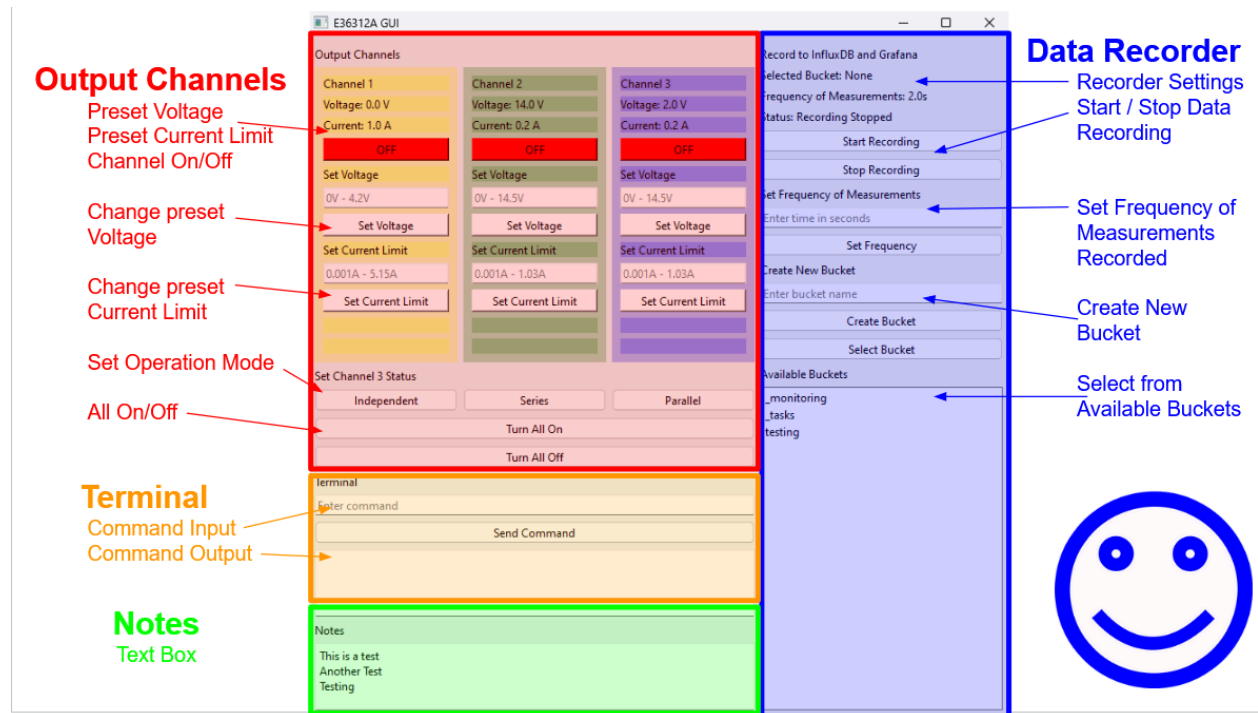


E36312A GUI

GUI Diagram



Output Channels

Heading	Description
Preset Voltage	Displays the voltage to which it has been set
Preset Current	Displays the current limit to which it has been set
Channel On/Off	Toggles each individual channel
Change Preset Voltage	Changes the preset voltage for each channel

Change Preset Current	Changes the preset current limit for each channel
All On/Off	Toggles all channels

Terminal

Heading	Description
Command Input	Users can enter commands not covered by the GUI
Command Output	The result of the command input is displayed here

Notes

Heading	Description
Text Box	Users can type notes about miscellaneous commands or observations. These notes are autosaved to a text file.

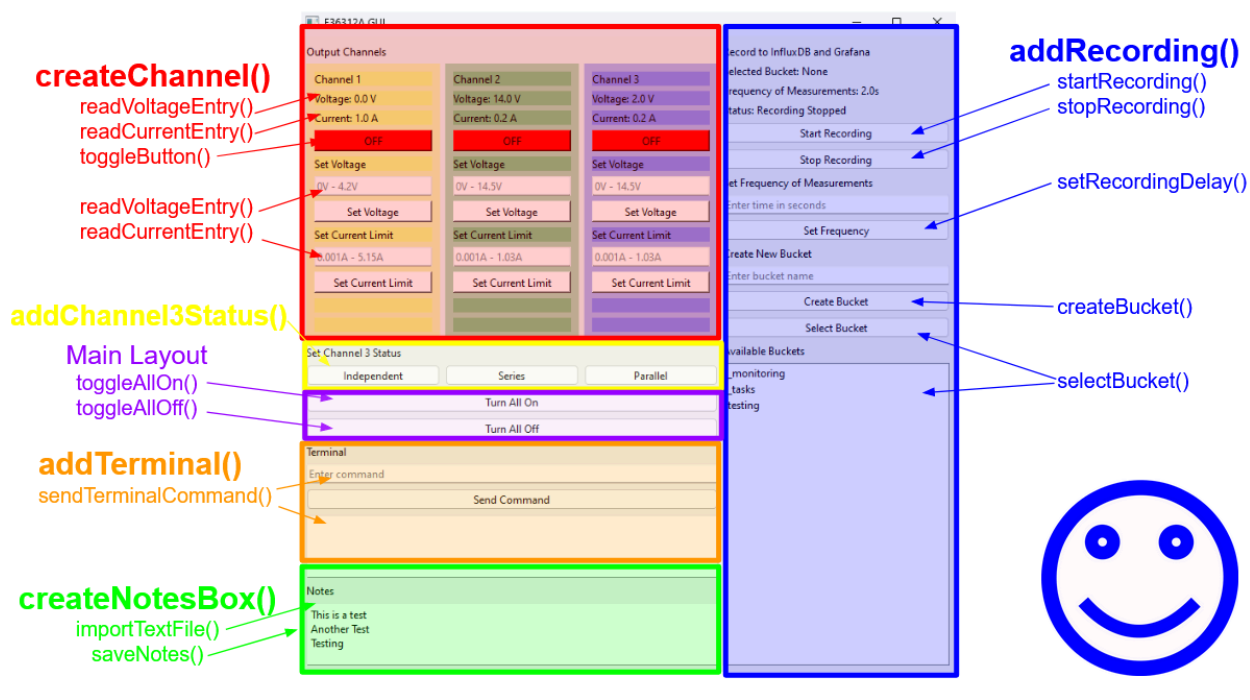
Data Record

Heading	Description
Recorder Settings	Displays the bucket that will store the data, the frequency of

	measurements and whether the program is currently recording.
Start/Stop Data Recording	Toggles whether the data is saved and uploaded to the database. Recorder only records data for channels that are ON.
Set frequency of measurements recorded	Sets the delay between each measurement taken by the program. 2 seconds is the lowest due to the execution time of the code.
Create new bucket	Creates a new bucket in InfluxDB that can be written to. Bucket never expires
Select from available buckets	Displays all available buckets that can be written to by the program

Programming Diagram

Functions



Layouts

channel_layout

Ch3Layout

Part of Main Layout

terminal_layout

layoutN

The screenshot shows the E36312A GUI with several distinct sections:

- Output Channels:** A grid of controls for Channel 1, Channel 2, and Channel 3. Each channel has fields for Voltage, Current, and a power button (OFF). Below these are 'Set Voltage' and 'Set Current Limit' buttons.
- Set Channel 3 Status:** A section with radio buttons for 'Independent', 'Series', and 'Parallel' modes, and 'Turn All On' and 'Turn All Off' buttons.
- Terminal:** A section with an 'Enter command' text field and a 'Send Command' button.
- Notes:** A green box containing the text 'This is a test', 'Another Test', and 'Testing'.
- Recording Layout:** A blue-bordered section on the right containing recording controls like 'Start Recording', 'Stop Recording', and 'Set Frequency of Measurements'.

recording_layout



Corresponds to Python code

Warning: Device Resets on Connection if testing is enabled (lines 322-326)

- Power Down
- Voltage/Current setting to default
- Channel 3 Output mode set to Independent
- Briefly turn on all output channels
- Briefly turns on all Data Logger recording parameters

```
init_test = x.test(DPS) # Tests device
if init_test:
    pass
else:
    print("Error in initiation or test")
```

Starting: Either GPIB or LAN can be used

- When using LAN, restart devices after communication

Improvements for the future

E36312A GUI locks out CLT, you cannot type in the command line while GUI is running

Needs to be able to communicate with multiple devices; cannot have more than 2 instances running

store/recall - be able to retrieve earlier settings; useful if user runs test()

Loss of connection warning - if device powers off while GUI is open, the connection will be lost and the program has to be re-ran

Minimum recording time to Grafana is 2 seconds -> 100ms room for improvement

- Assuming it is caused by code execution time
- Unlikely to be code issue since all times greater than 2 seconds run properly
- GUI -> .csv buffer -> InfluxDB
- Potential solution to issue

Only channels that are on are recorded

Refresh Grafana when trying to view data

InfluxDB and Grafana Manual below

|
v

InfluxDB/GraFana Manual

InfluxDB

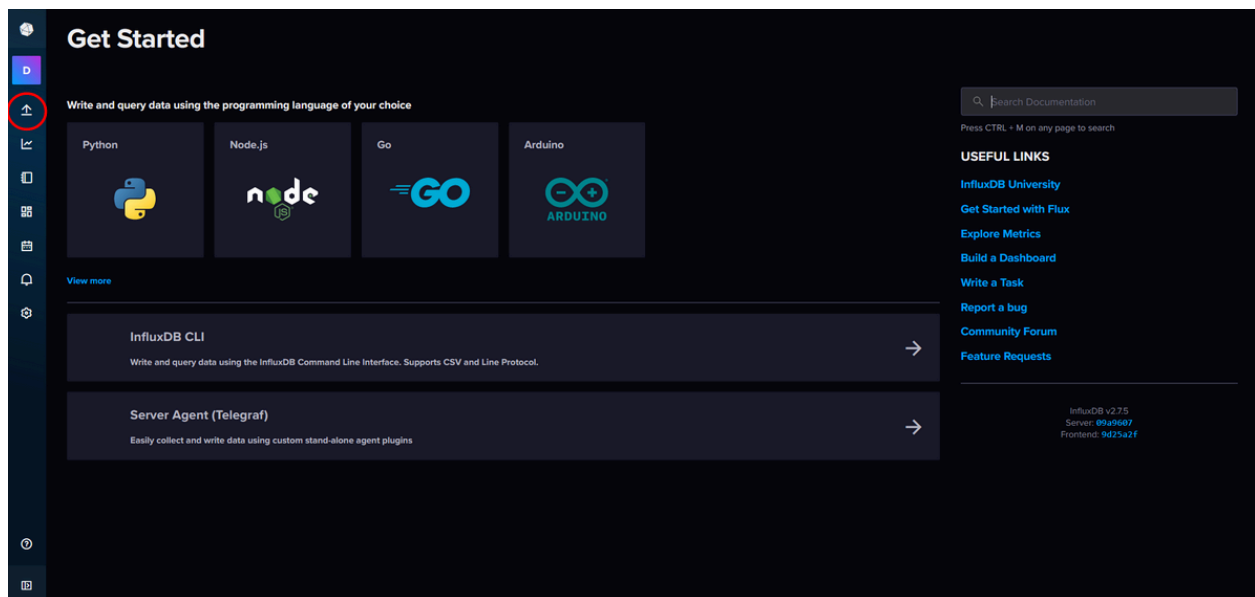
Automated functions

- Creating Bucket
- Writing to Bucket

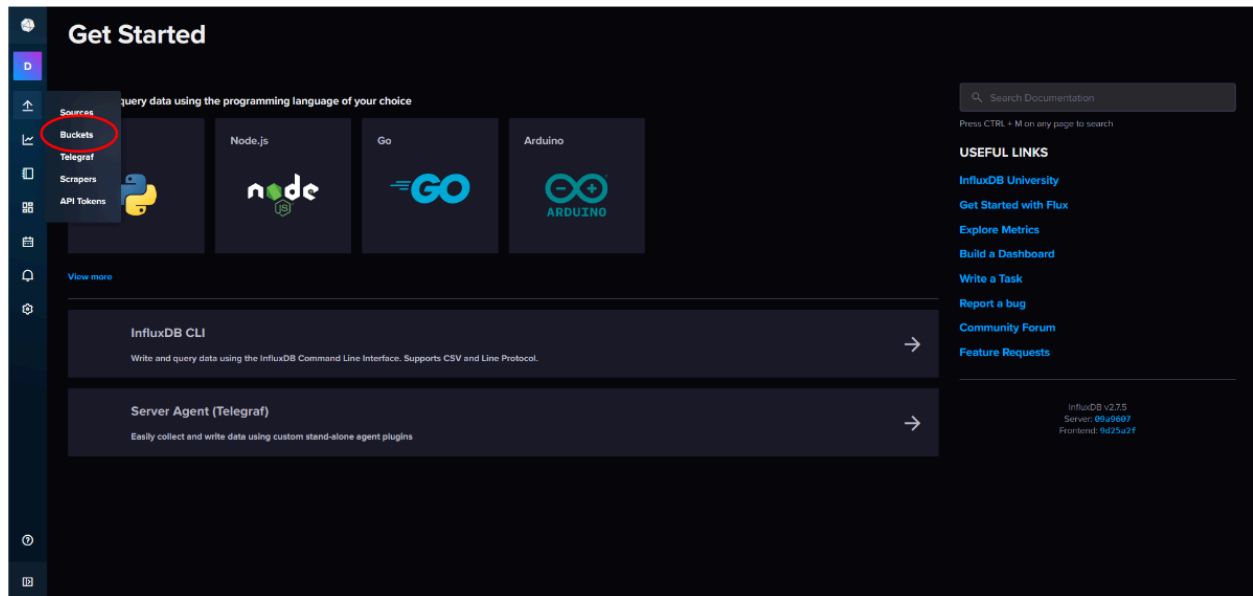
Manual Configuration

Creating Bucket

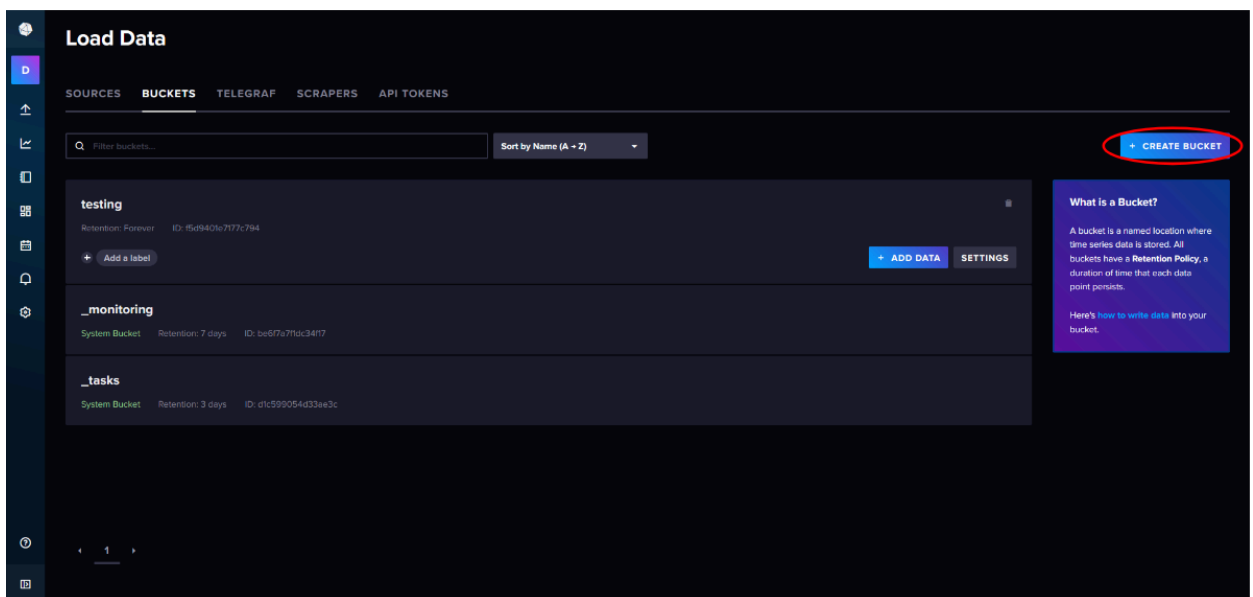
Open InfluxDB and Navigate to Up Arrow on the left panel



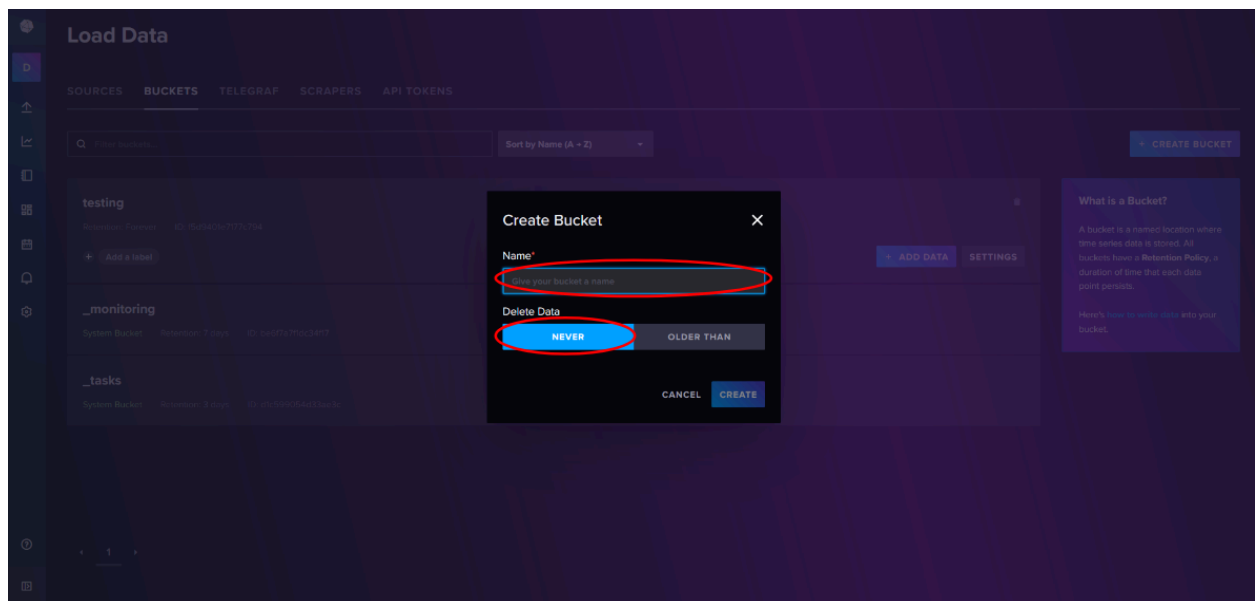
Click Buckets



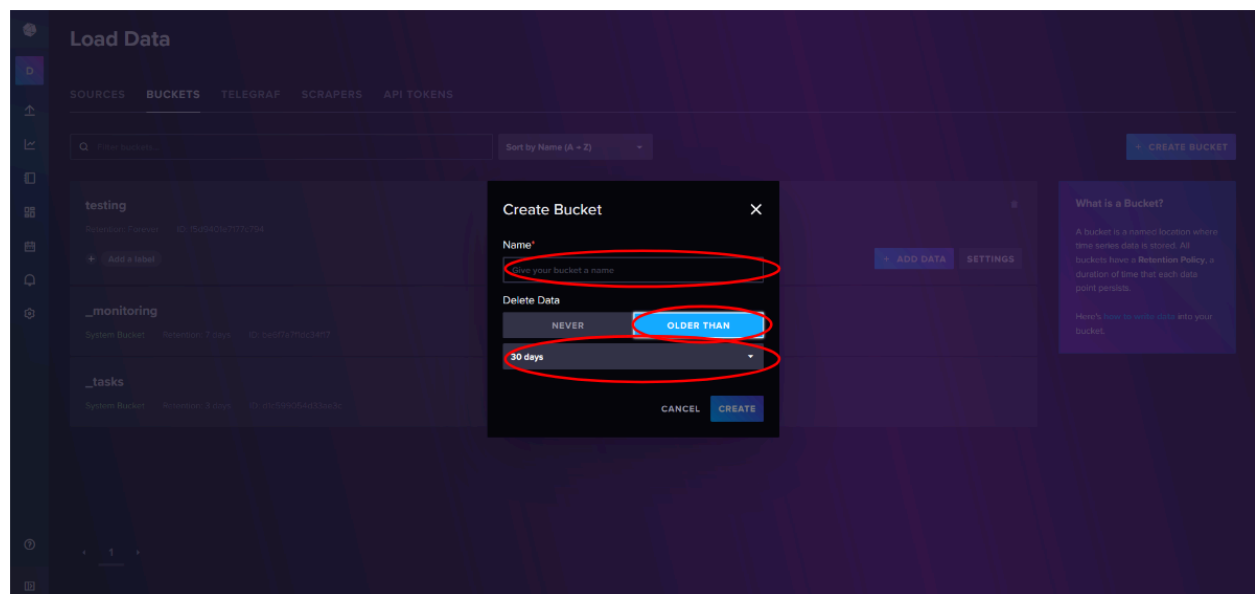
Click Create Bucket in the top right



Select if you want the data to never be deleted automatically



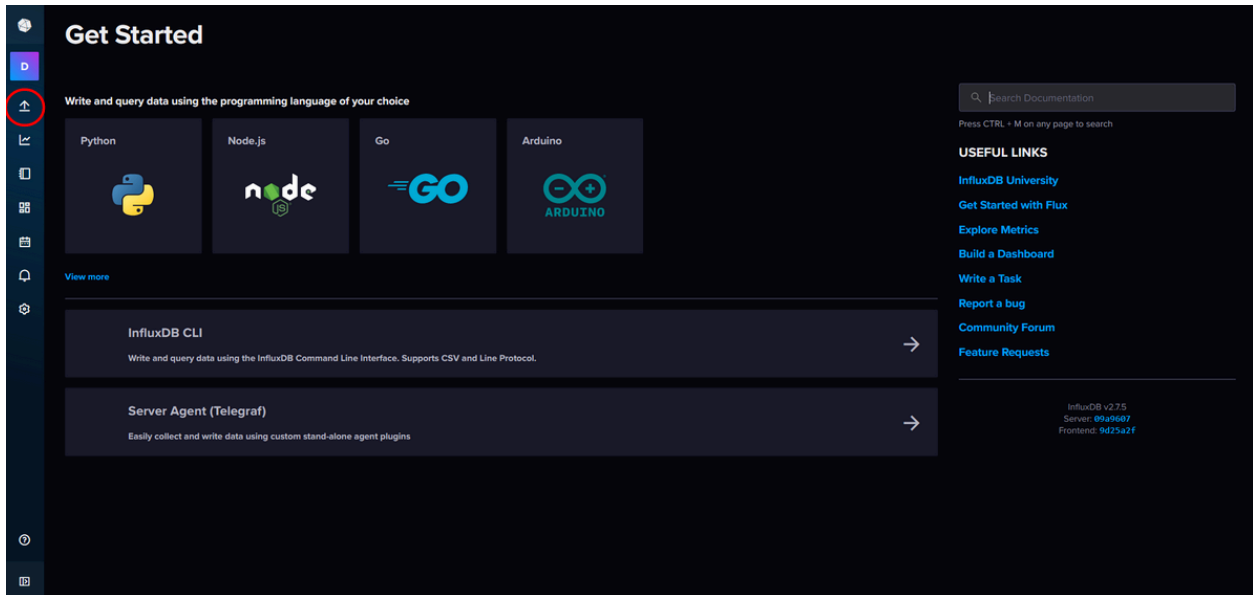
Or if you want the data to be deleted after a set period of time



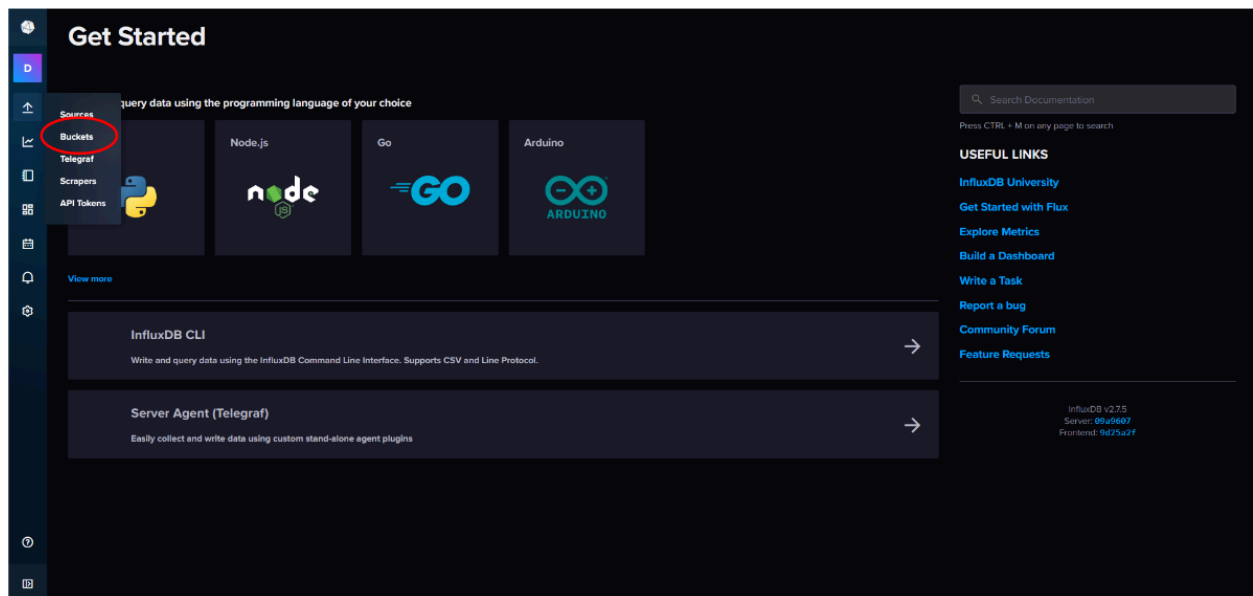
Click Create

Writing to Bucket

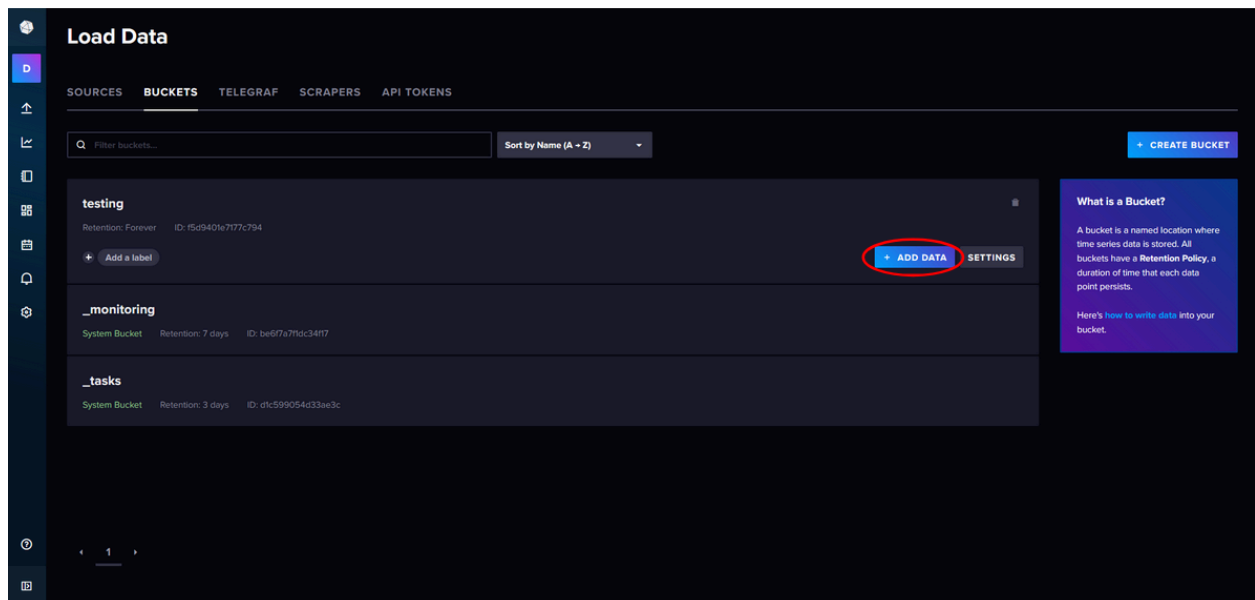
Open InfluxDB and Navigate to Up Arrow on the left panel



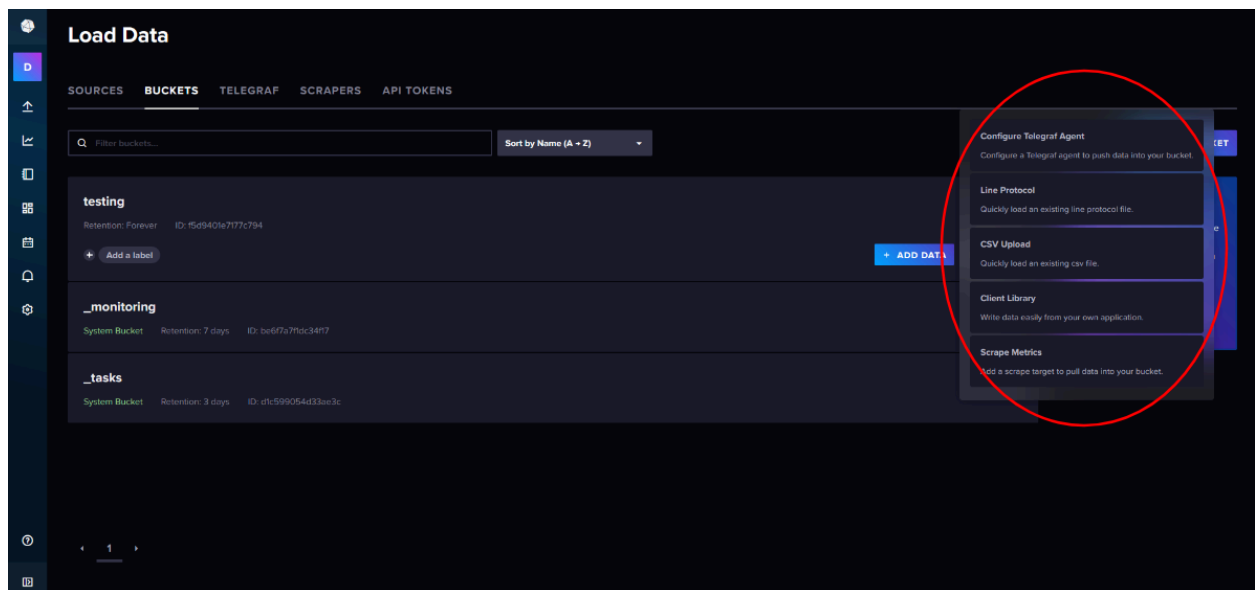
Click Buckets



Click Add Data on the right hand side



Select Preferred Method, usually CSV or Line Protocol



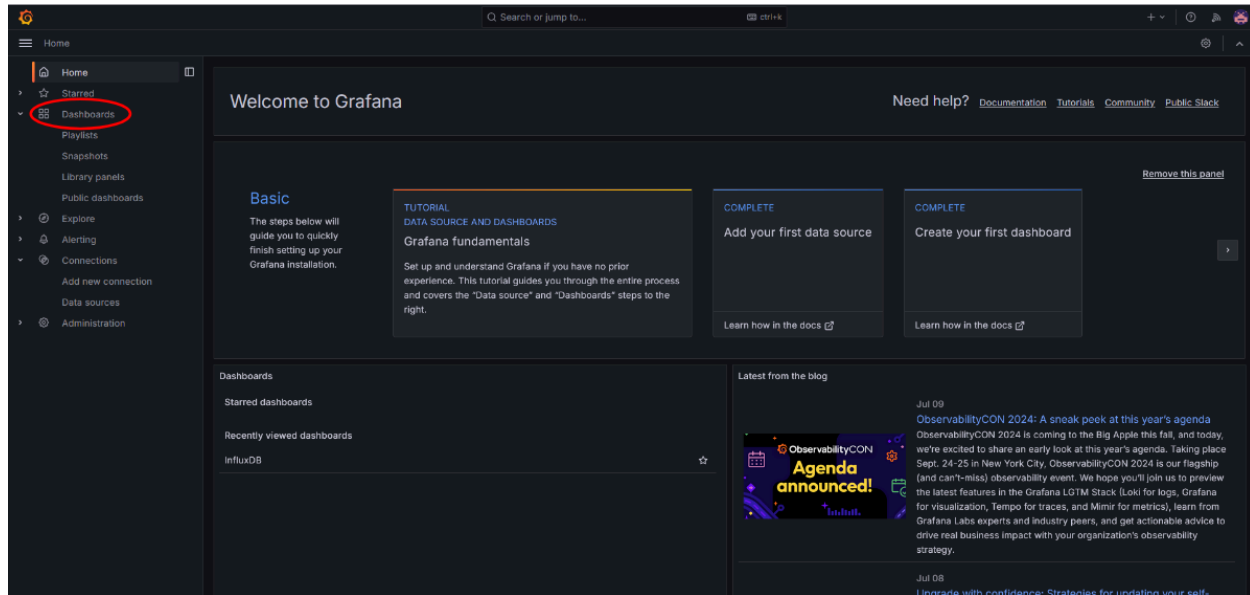
Grafana

Automated functions

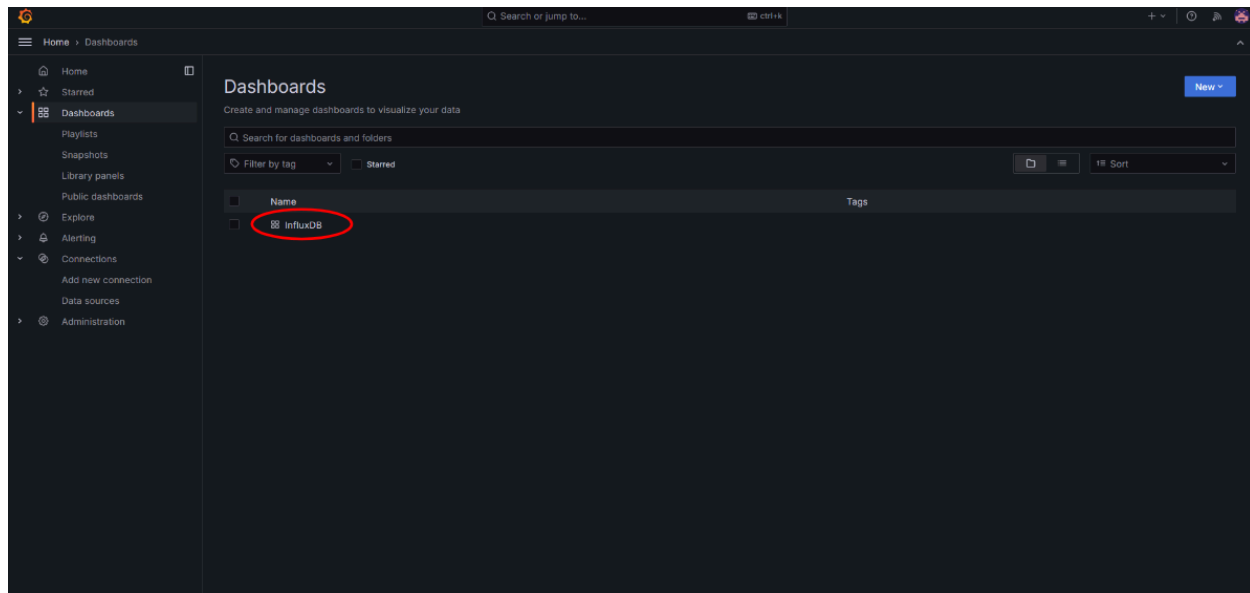
- Plotting of data from a selected bucket

Viewing Data

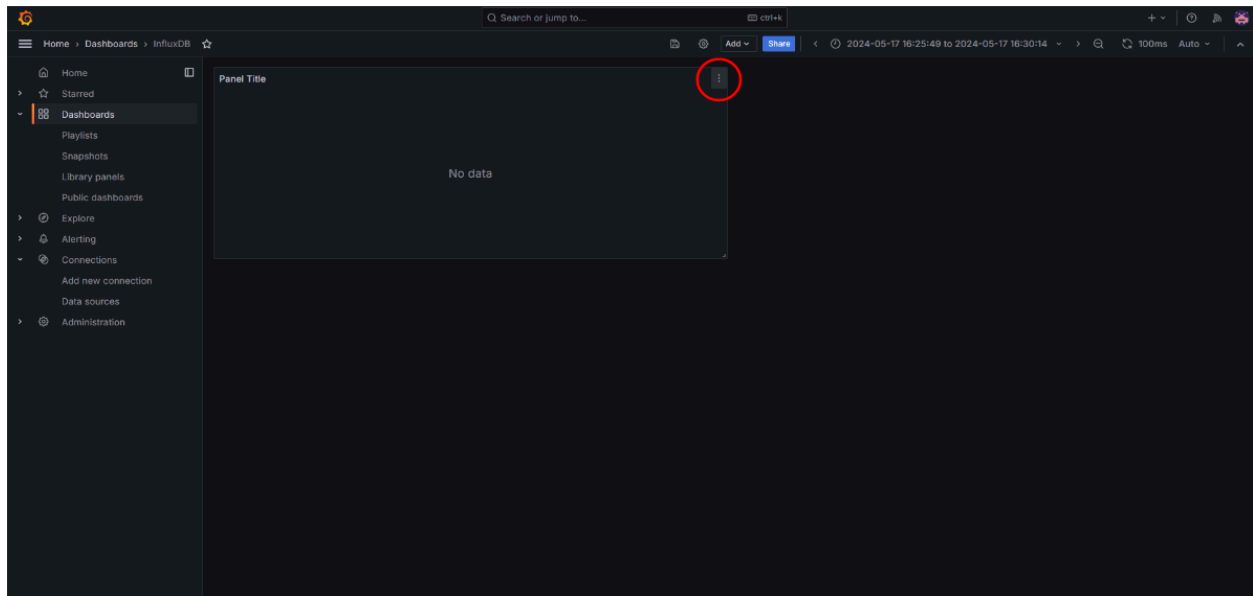
Open Grafana and navigate to Dashboards



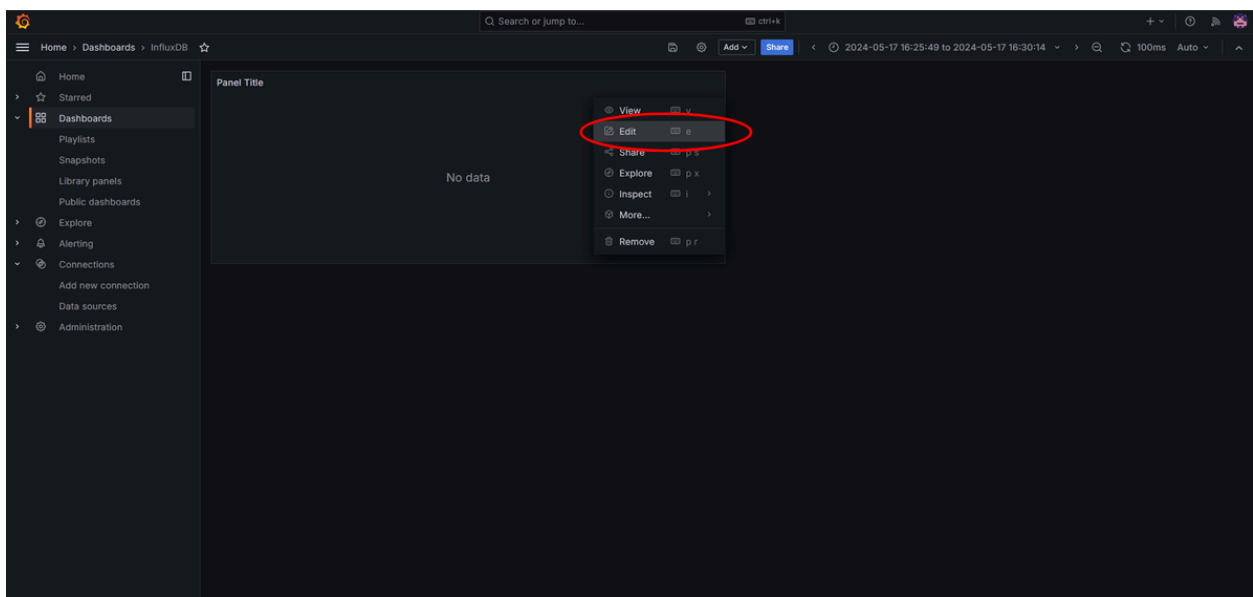
Navigate to InfluxDB



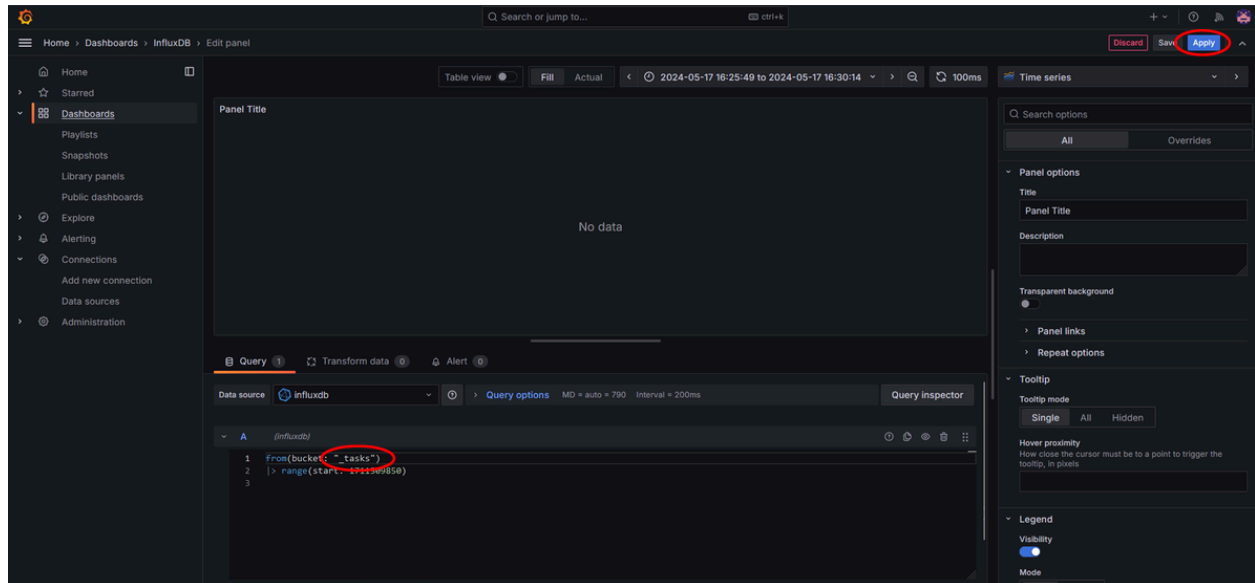
Click three dots on top right of the panel



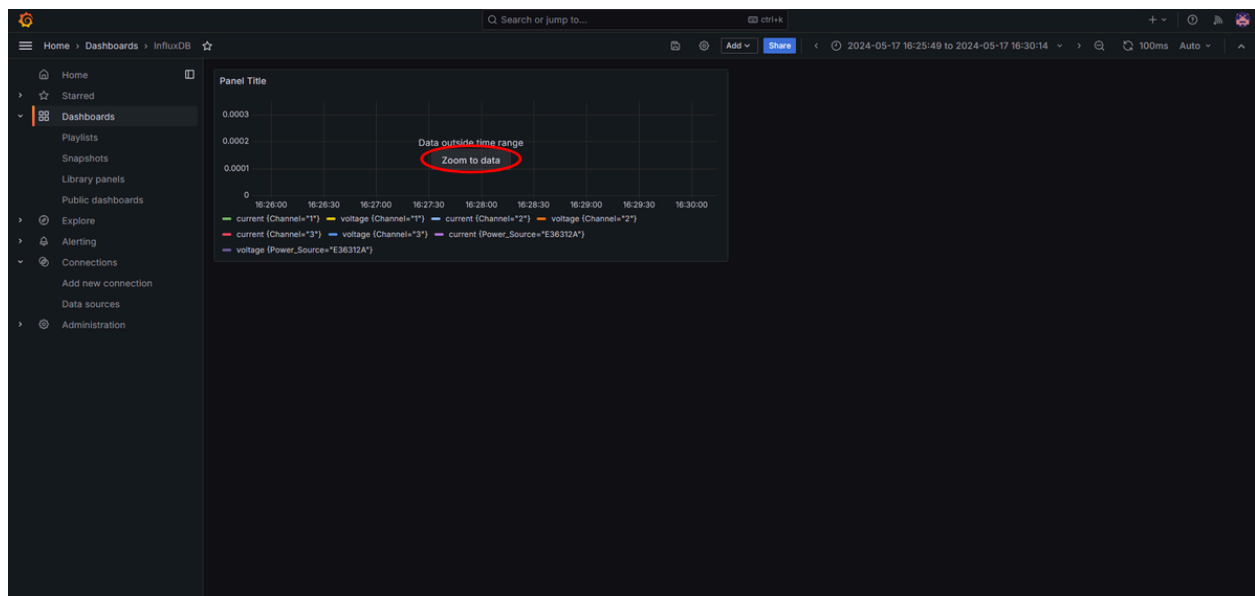
Click Edit



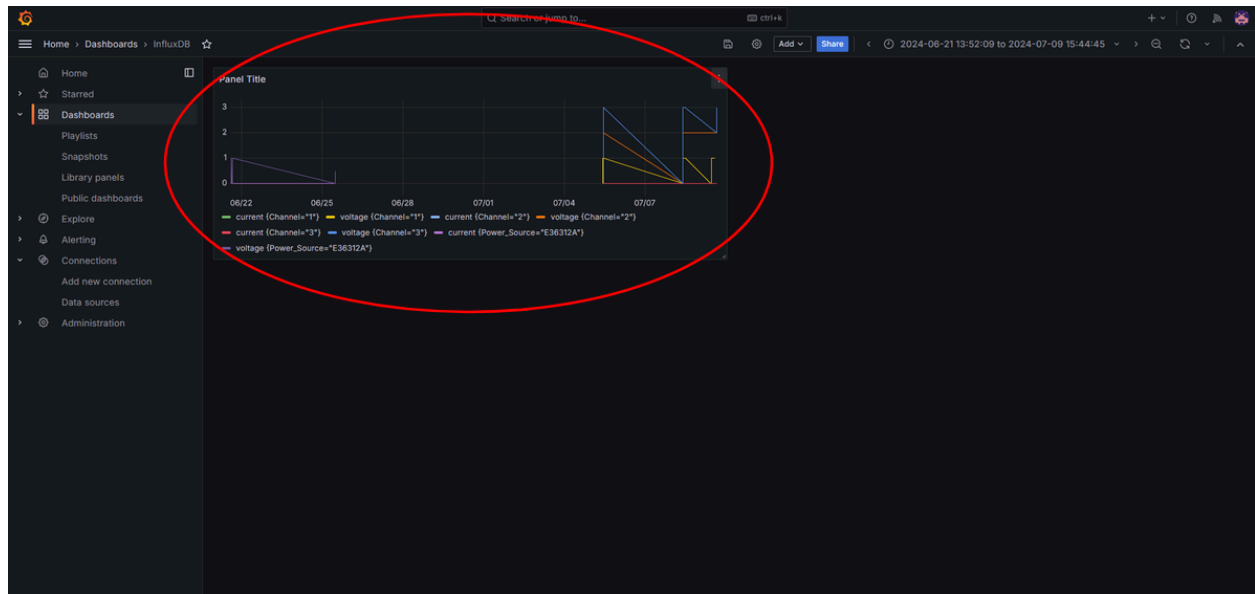
Enter the Bucket you want to display (where the data is stored) and click apply in the top right



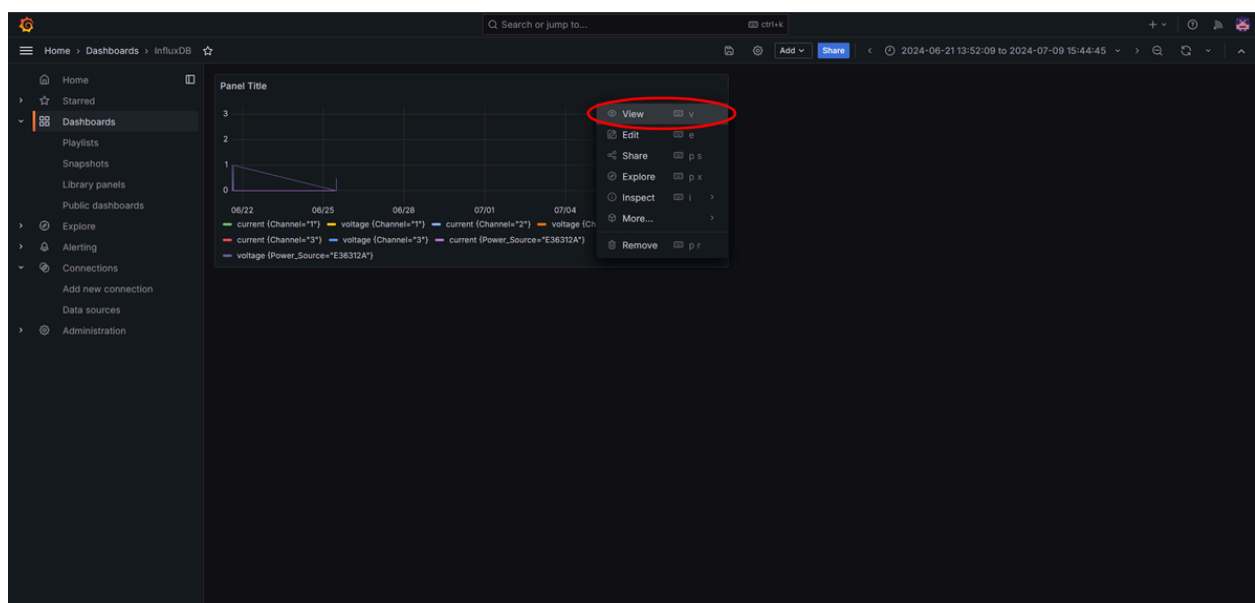
Click Zoom to data on the panel



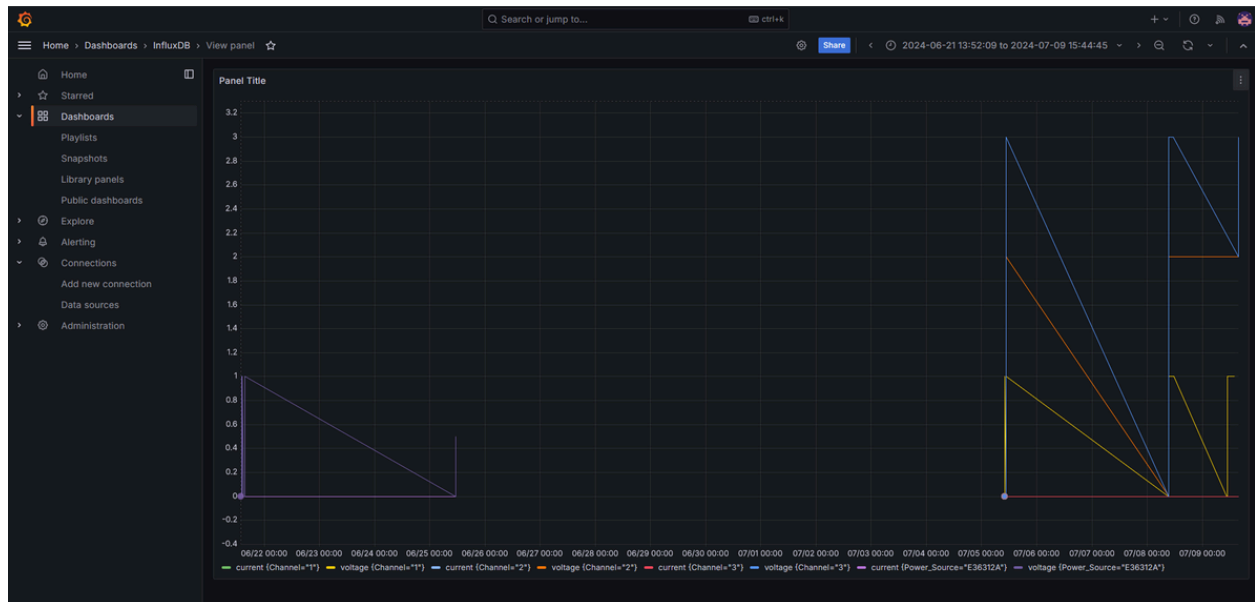
Graph of data will be displayed



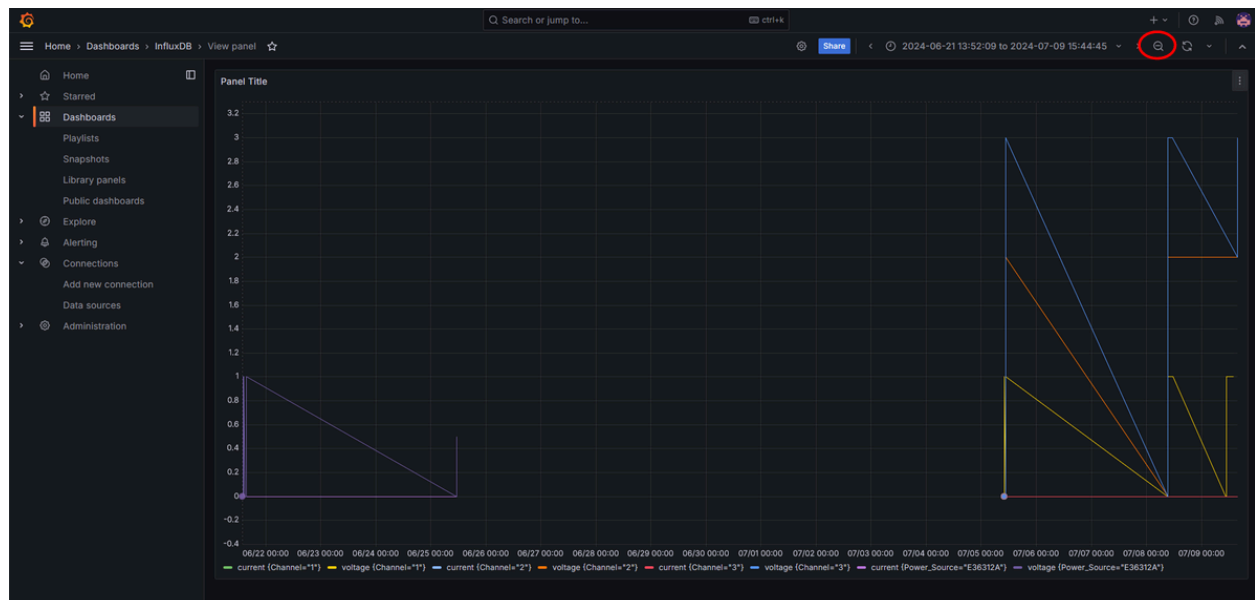
To maximize panel, clicked the three dots then click View



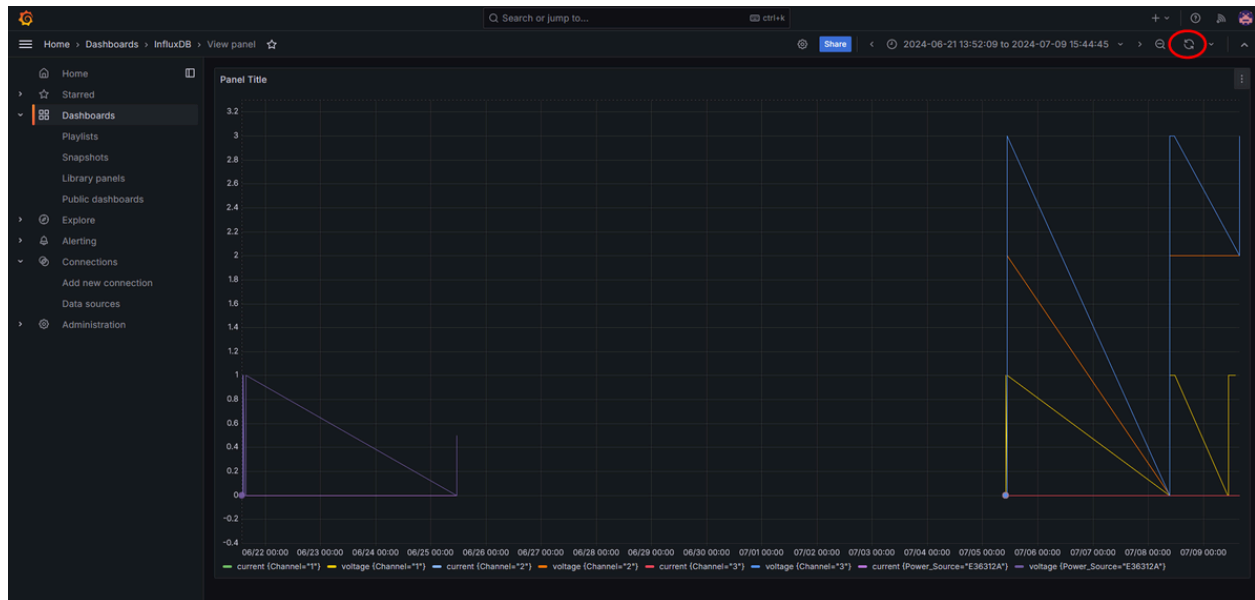
Panel will be Maximized



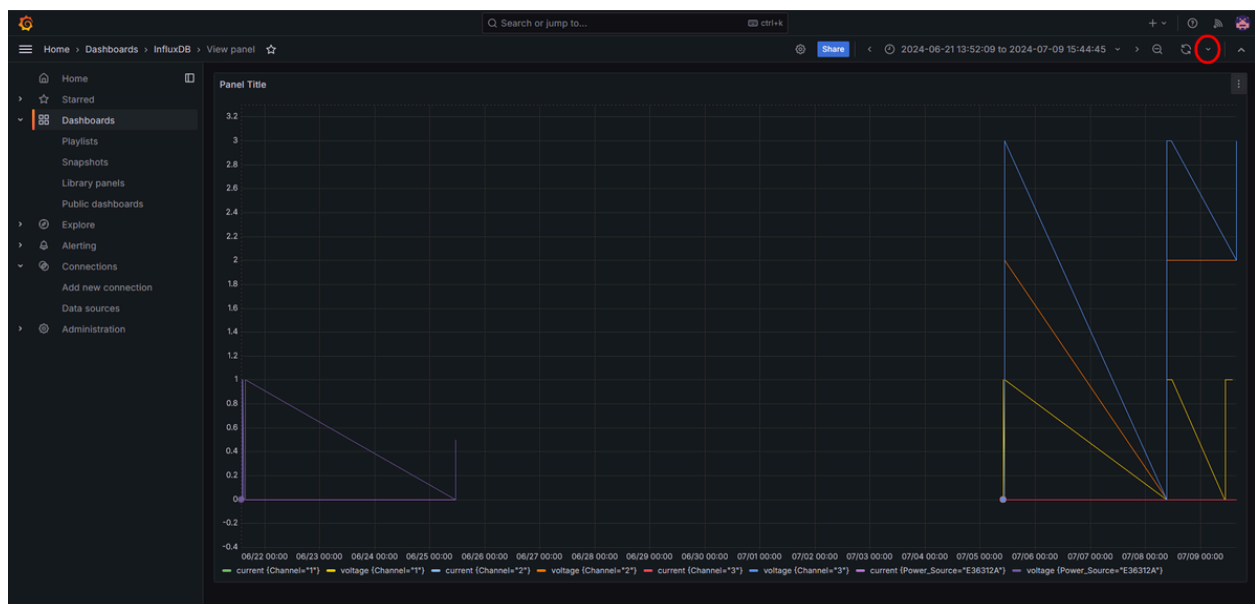
To Zoom Out from the timeframe, click the magnifying glass with a “-” inside it



To refresh the graph, click the circular arrows



To set auto-refresh, click the downward carrot next to the arrows



Select the frequency of refreshes

