

VEET Data Charting Tool User Guide

Overview

The VEET Data Charting Tool is a Python-based application designed to help users visualize and analyze data from the VEET (Visual Environment Evaluation Tool). The VEET Data Charting Tool comes packaged as either a self-contained .exe file or a Python script.

The VEET Data Charting Tool processes CSV files generated by the VEET and provides an interactive graphical interface for exploring sensor data, system behavior, and device performance over time.

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System Requirements

For .exe file:

- Windows 11

For Python file:

- Python **3.7 or higher**

Required Python Packages

pandas >= 1.3.0
matplotlib >= 3.4.0
PySide6 >= 6.0.0
numpy >= 1.20.0
pytz >= 2021.1

The full dependency list is available in the requirements.txt in the Python folder of the VEET Data Charting Tool zip file.

Data File Requirements

Using the VEET Data Charting Tool requires that you have a folder containing the VEET data files you plan to use. Copy the log and sensor data files from the VEET over to a directory in your computer (avoid copying the files to “Downloads”). Though you can also access the data files directly from a VEET, this is not recommended due to long file load times.

Example:

```
VEET_Folder/  
├── *log.csv  
└── *Sensor_Data.csv
```

Accepted Naming Examples of VEET files

- 2025-08-03 23-46 log.csv
- device_001_Sensor_Data.csv

NOTE: The files must end in “log.csv” and “Sensor_Data.csv”

File Format Requirements

Sensor_Data.csv

- Must contain an **INF line** for system configuration to display.
- Data must follow the expected column format.
- Timestamps must be in **Unix epoch**.

log.csv

- Must include **STATE entries** for them to display
- This file is especially useful for:
 - Battery events
 - Device Sleep detection
 - Reboot tracking

Installation

1. Download the VEET Data Charting Tool zip file from projectveet.com
2. (For Python version only) Install the required packages:

```
pip install -r requirements.txt
```

3. Launch the application

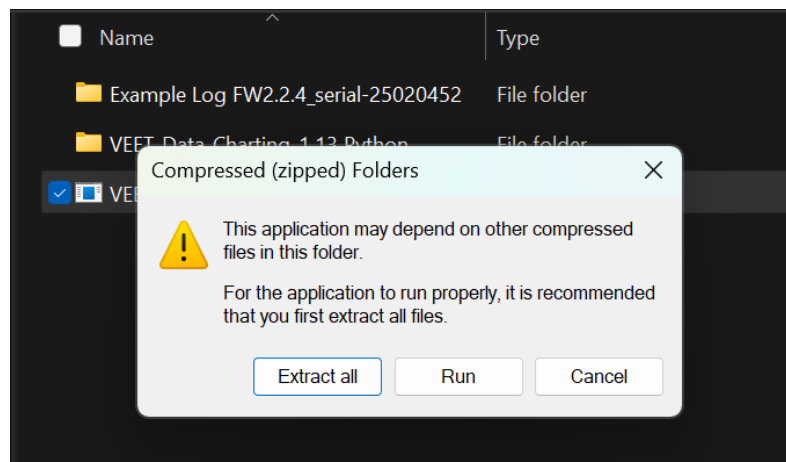
VEET_Data_Charting_1.14.exe (self contained executable)

or

python VEET_Data_Charting_1.14.py (python script)

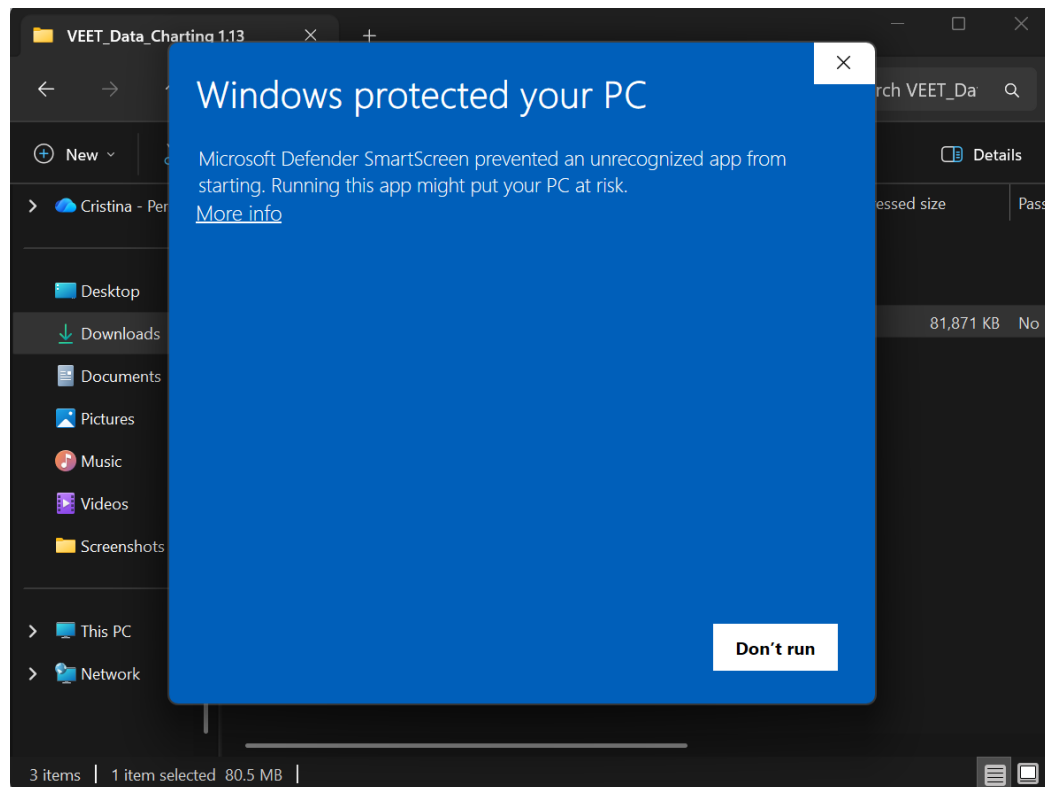
Usage Instructions

1. Launch the VEET Data Charting Tool application
 - Windows may display the following pop-up window. Click “Run.”

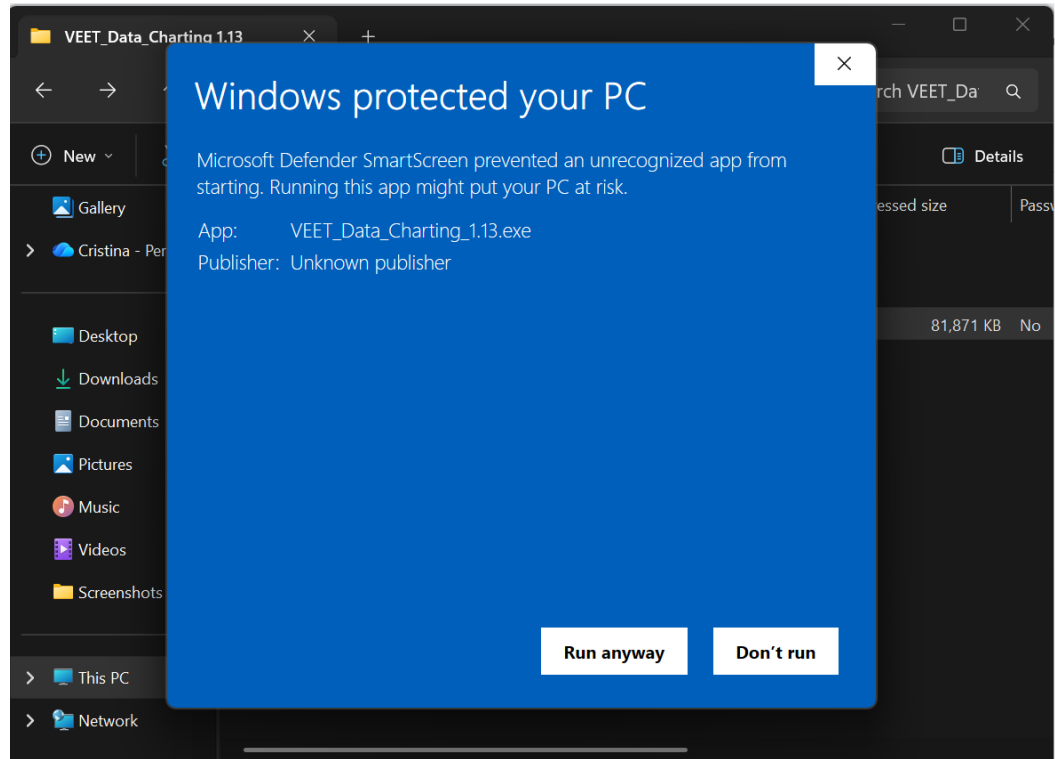


Windows Pop-up: (zipped) Folders

- Windows may additionally display the following security pop-up window. Click “More Info,” followed by “Run anyway.”



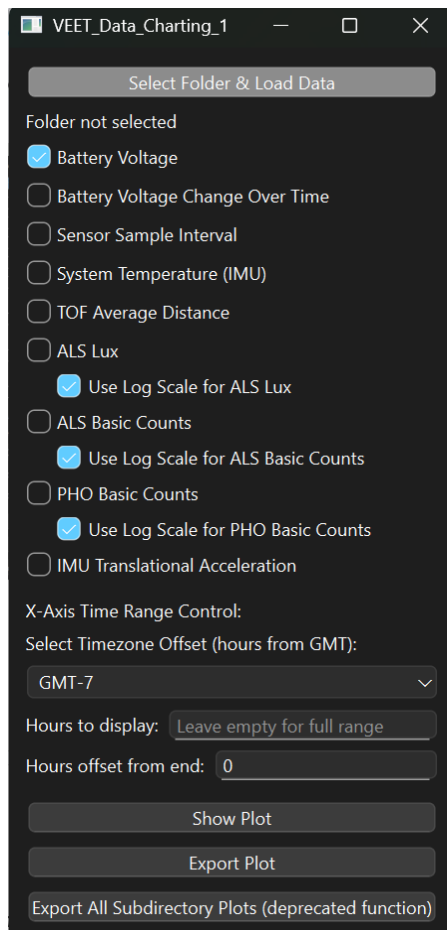
Windows Security Pop-up: More info



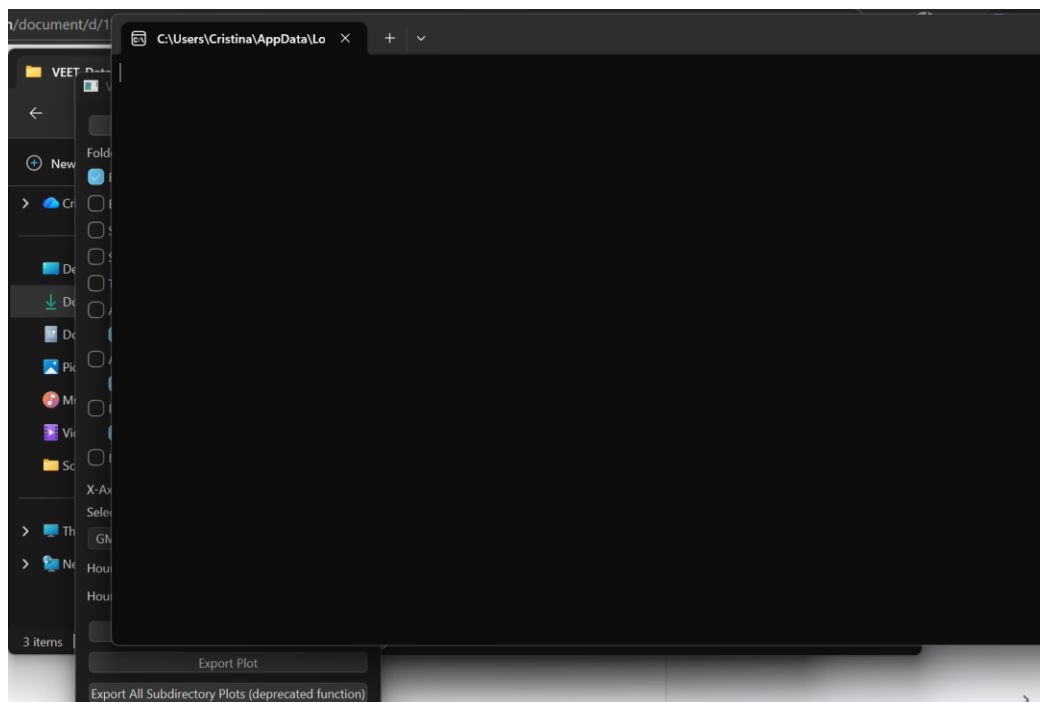
Windows Security Pop-up: Run anyway

2. Click "Select Folder & Load Data" from the Data Charting Tool directory.

NOTE: The app directory may be hiding behind your computer terminal.

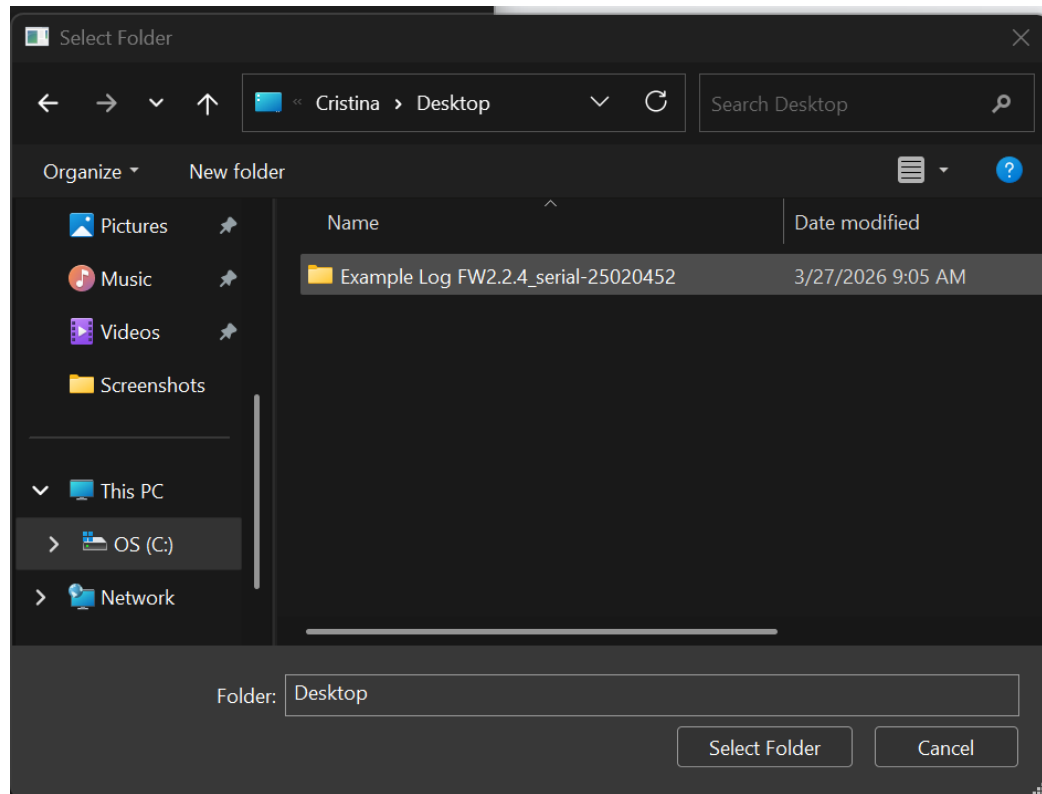


Data Charting Tool Directory



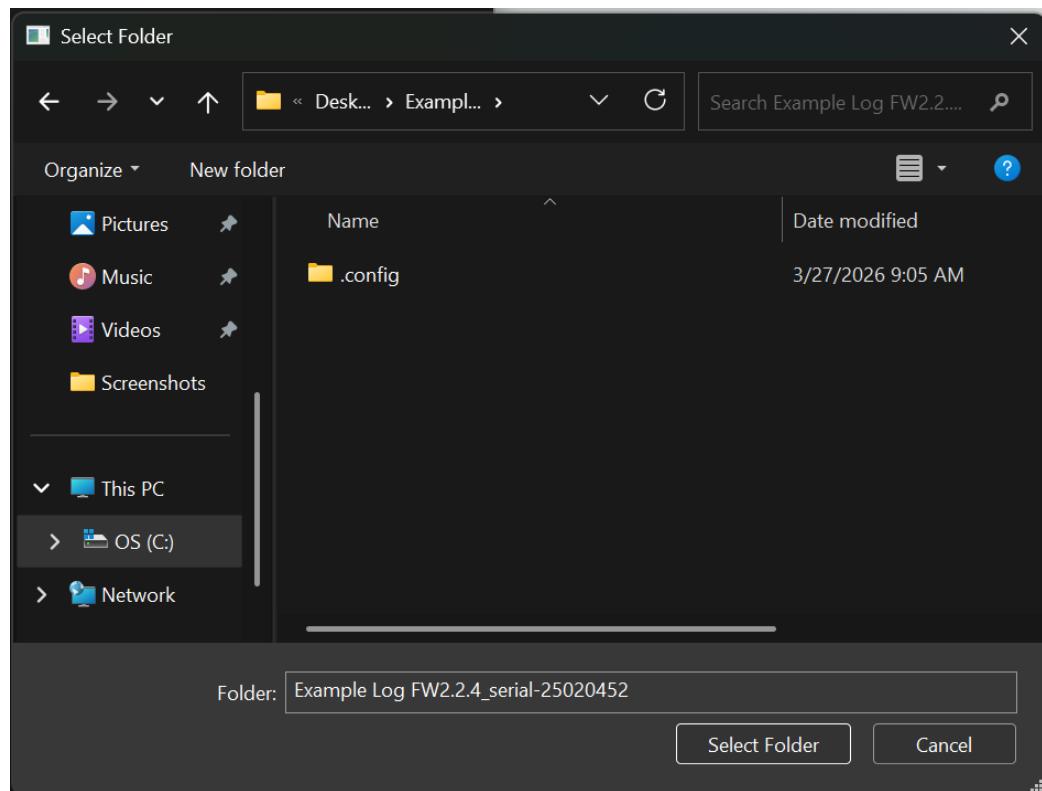
Data Charting Tool Directory hiding behind terminal

3. Choose the folder containing your VEET log and sensor data files. As best practice, make sure the folder is previously copied to your computer.



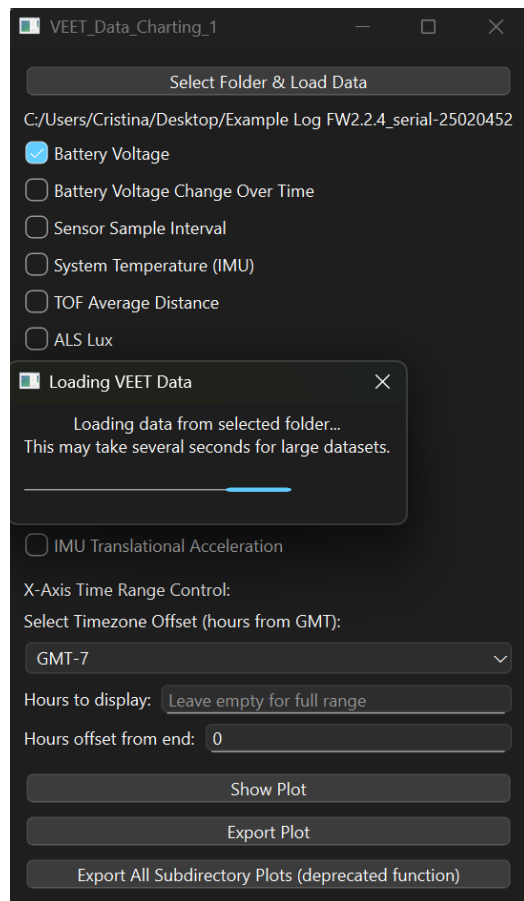
Select Data Folder from Computer

NOTE: If you double-click your data folder, the contents of the folder are not shown. This behavior is normal; it is a simple visualization choice to indicate that a folder, not a file, must be selected.

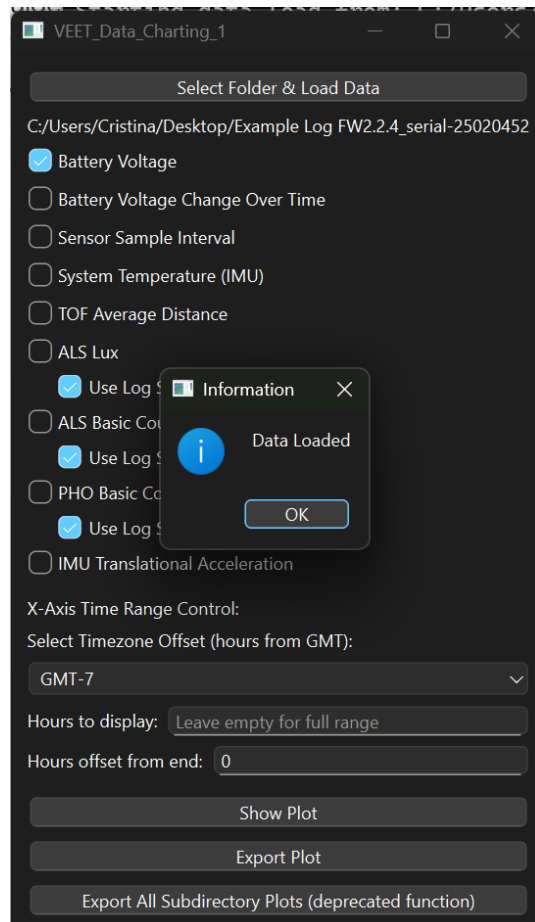


Sample data folder with (apparently) no log or sensor data files

4. Wait for data to load (this may take some time) and click "OK."



Data loading



Data loaded

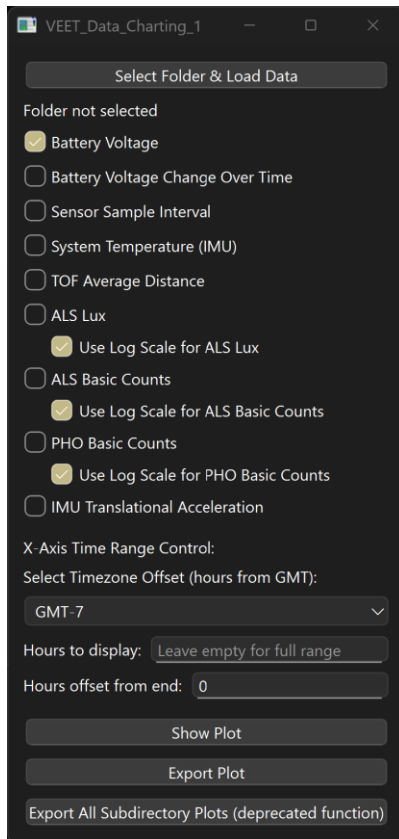
5. Select the desired plot types by using the checkboxes.

NOTE: Though the subcategories “Use Log Scale for...” are selected by default, the larger categories “ALS Lux,” “ALS Basic Counts,” and “PHO Basic Counts” must be selected to render these plots.

6. Adjust the time and timezone settings as necessary.
7. Click "Show Plot."

Key for Charting Tool Directory

The VEET Data Charting Tool directory is the control center for loading data and configuring plots.



Primary Controls

Folder Selection

The **Select Folder & Load Data** button opens a file browser that allows you to select a VEET data folder. This button automatically detects (though doesn't display) required CSV files.

Plot Selection

- Checkbox list of available plot types (default options are automatically checked).
- Multiple plots can be selected at a time. Only selected plots are generated.

Time Controls

Hours to Display limits the visible time window, going back from the last data entry on plot generation.

- Example: if the most recent data entry was logged on April 3, 2026 at 6:00PM, setting the **Hours to Display** to 6 will show data from 12:00PM - 6:00PM on April 3, 2026.

Hours Offset from End determines how far to offset the display window from the last data entry on plot generation.

- Example: if the last data entry was logged on April 3, 2026 at 12:00PM, but you want the plot to display the data only from April 2, 2026, set the **Hours Offset** to 12 (and the **Hours to Display** to 24 to display only the 24 hours of April 2, 2026).

Timezone Selector adjusts timestamps (GMT-12 to GMT+14)

Scaling Options

- Log scale available for:
 - ALS Lux
 - ALS Basic Counts
 - PHO Basic Counts
- Useful for large dynamic range signals.

Exporting Plots

- Clicking “Export Plot” exports the currently selected plot as a PNG image.
- The file name is generated automatically based on the plot title.

NOTE: The “Export All Subdirectory Plots” functionality is deprecated.

Plot Types and Data Visualization

The VEET Data Charting Tool generates nine plot types:

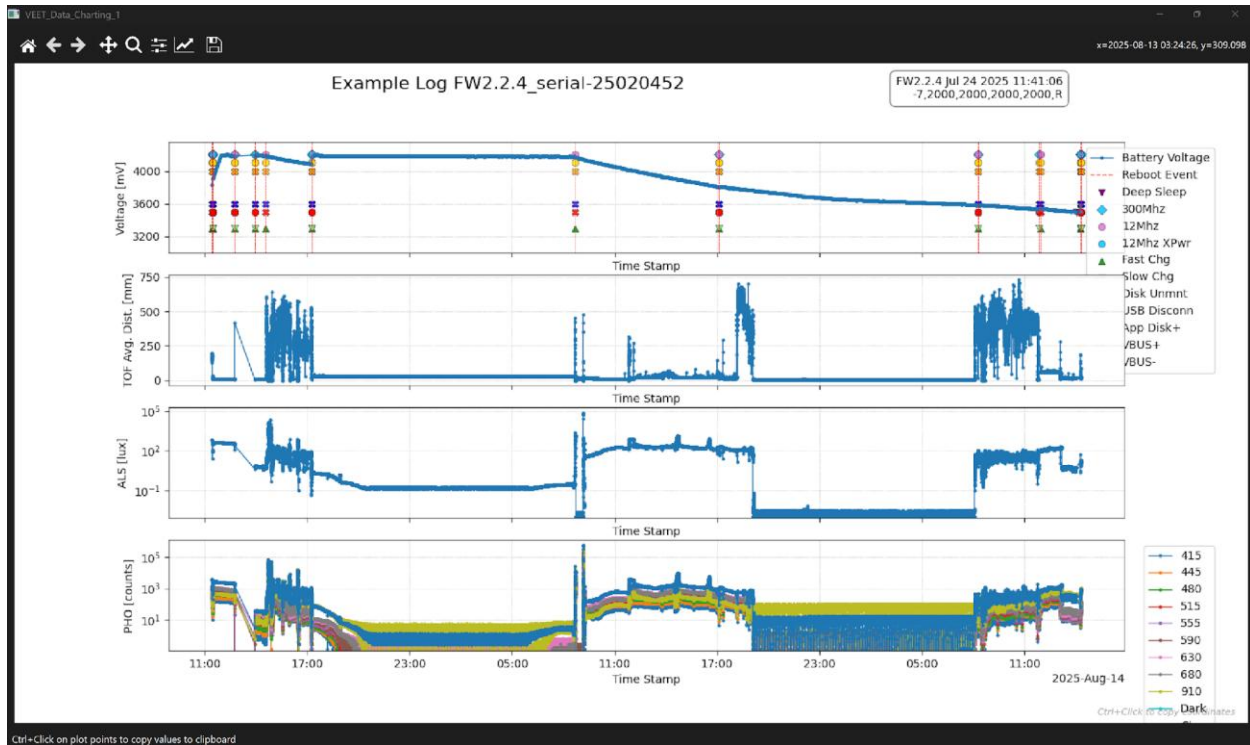
Plot Type	Functionality
Battery Voltage	Includes system state indicators (charging, sleep, USB, etc.)
Battery Voltage Change Over Time	Shows discharge and charge trends
Sensor Sample Interval	Sensor timing and acquisition rates

System Temperature (IMU)	IMU-based temperature readings
TOF Average Distance	Average time-of-flight distance measurements
ALS Lux	Calculated luminance values
ALS Basic Counts	Spectral data in basic counts per channel (<400nm, 400–700nm, >700nm)
PHO Basic Counts	Spectral data in basic counts per channel (415–910nm, Clear)
IMU Translational Acceleration	3-axis motion data

For more information on how to interpret this data and system events, refer to the VEET 2.1 Data Interpretation Guide and the VEET 2.1 Log Interpretation Guide available for download from projectveet.com.

Navigating the Plots

The VEET Data Charting Tool’s visualization interface is interactive and supports detailed data exploration.



Sample Plot

Basic Navigation

- **Zoom**
 - Left-click and drag to zoom in.
 - Right-click to zoom out.
- **Pan**
 - Click and drag to move across the plot.

Axis-Specific Controls

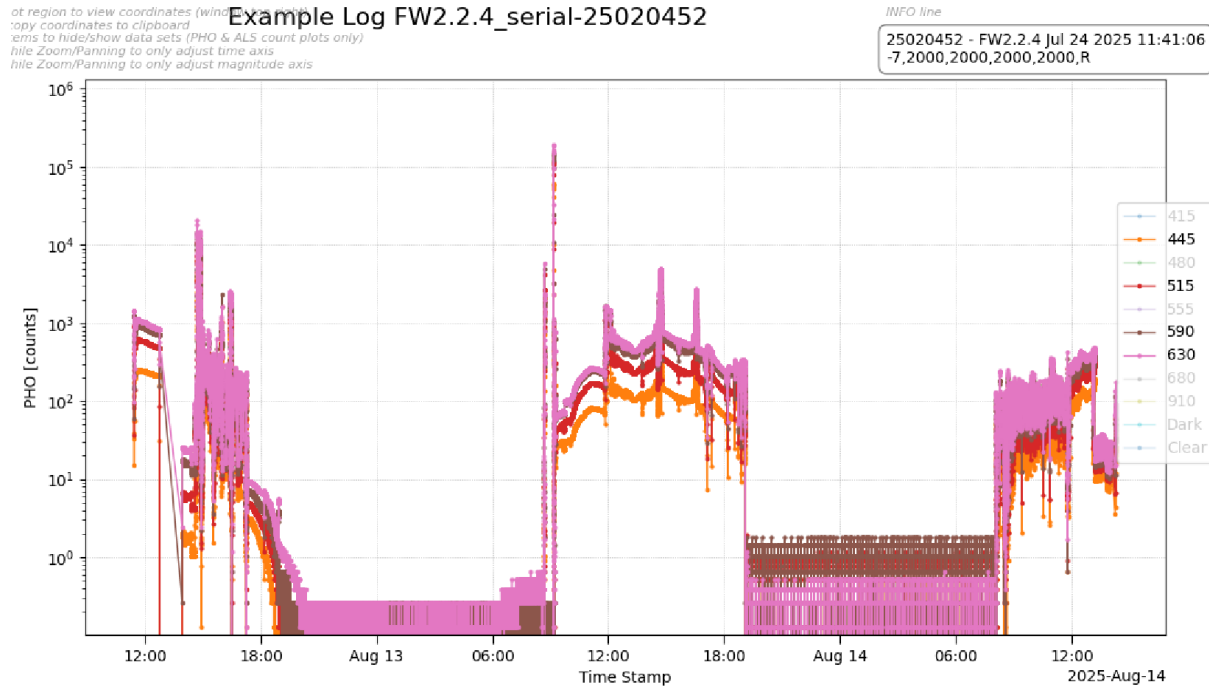
- Hold **X** to zoom/pan horizontally only.
- Hold **Y** to zoom/pan vertically only.

Data Inspection

- **Ctrl + Click**
 - Copies plot coordinates to clipboard
- **Hover**
 - Displays real-time coordinates

- **Legend Interaction**

- Click items in the legend of the PHO Basic Counts plot to show/hide different wavelengths (data series).

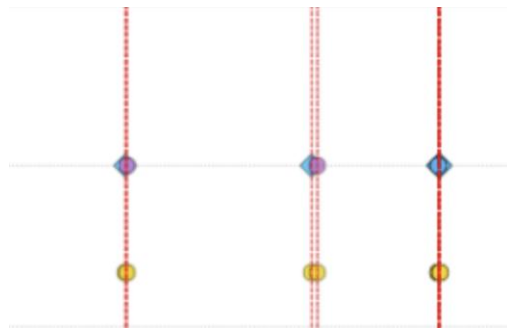


PHO Basic Counts Plot with only certain wavelengths selected in legend

Legend Controls

- Legends are **draggable** and can be repositioned for clarity.
- Battery plots include detailed event markers.

NOTE: Figures on plot may overlap.



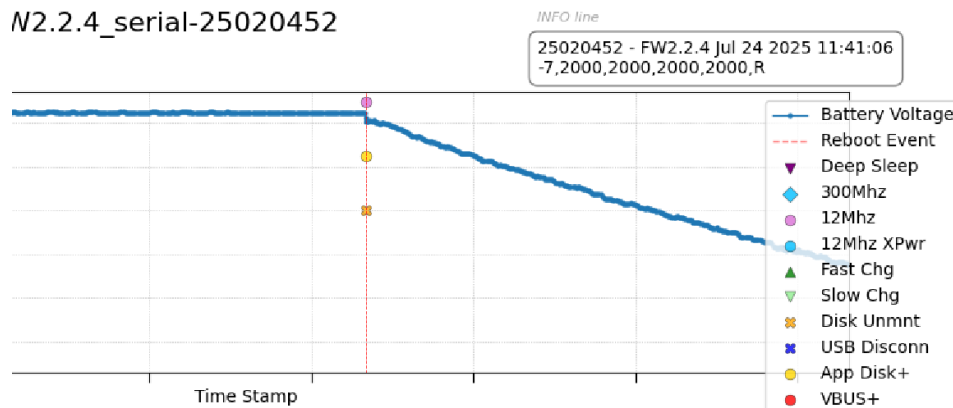
Overlapping Figures (blue diamond / purple circle) on Sample Plot

System Information Display

In the top right corner, each plot includes a system information panel derived from the sensor data. The system information panel reports the following:

- **Firmware Version**
- **Device Configuration**
- **Sensor Sampling Settings**

N2.2.4_serial-25020452



INFO panel in plot's top right corner

This information is extracted from the **first INF line** in the Sensor_Data.csv file selected. For more information on how to interpret the Information (INF) line in a VEET sensor data file, refer to the VEET 2.1 Data Interpretation Guide available for download from projectveet.com.

Troubleshooting

Data Not Plotting

- Verify the file name follows the [data file naming requirements](#).
- Ensure files are not empty or corrupted.
- Check configuration filters.

Missing Plots

- Confirm relevant data exists in CSV files.

- Verify expected columns are present.
- Check sensor output formatting.

Performance Issues

- Large datasets may take several seconds to load and multiple plots increase processing time. Reduce the time window or number of plots selected for faster performance.

Performance Notes

- Data loading time scales with dataset size. Plot complexity increases render time. Ensure sufficient system memory for large datasets.

Version Information

Current Version: v1.13

Highlights:

- Improved GUI interface
- Enhanced battery visualization
- Updated plot naming conventions
- Interactive legend support
- Flexible file handling

Example Log Event Description

Example [Link](#)

