Offline Data Quality Monitoring

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protoDUNE offline Data Quality Monitoring

Planning the updates on DUNE Offline Data Quality Monitoring

Team:

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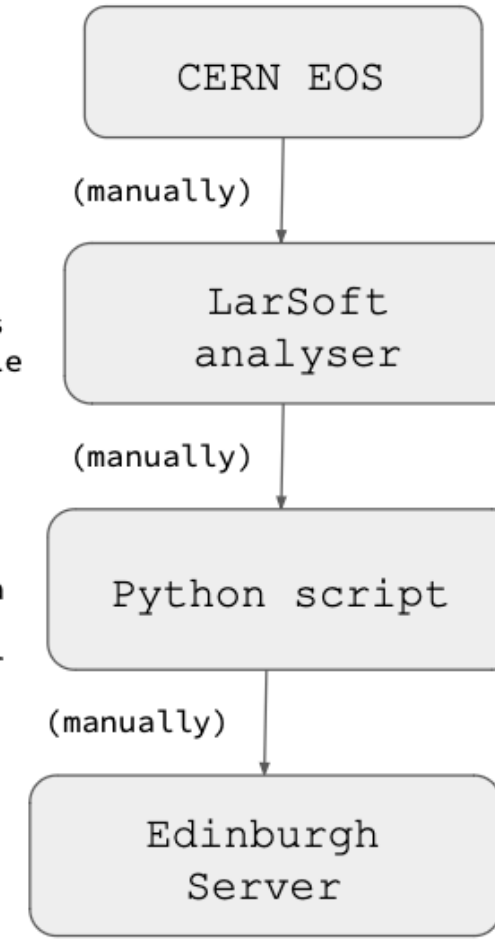
1. Framework is built for protoDUNE, so we can test it under data taking context;
2. Current User Interface: https://dunedash.edi.scotgrid.ac.uk/;
3. Plan to update de tool to be used in August 2024.

Path of the Data



Approximately 1 hour after data is recorded by DAQ (Wenlong)

Takes around 30 minutes to process each .hdf5 datafile

Outputs the usual ROOT file
+ Numpy arrays (file.npz)
+ For the future plots, will you want to export processed files (file.txt)?

Takes around 40 seconds to generate a single high resolution image. For 100 events, 1 hour!

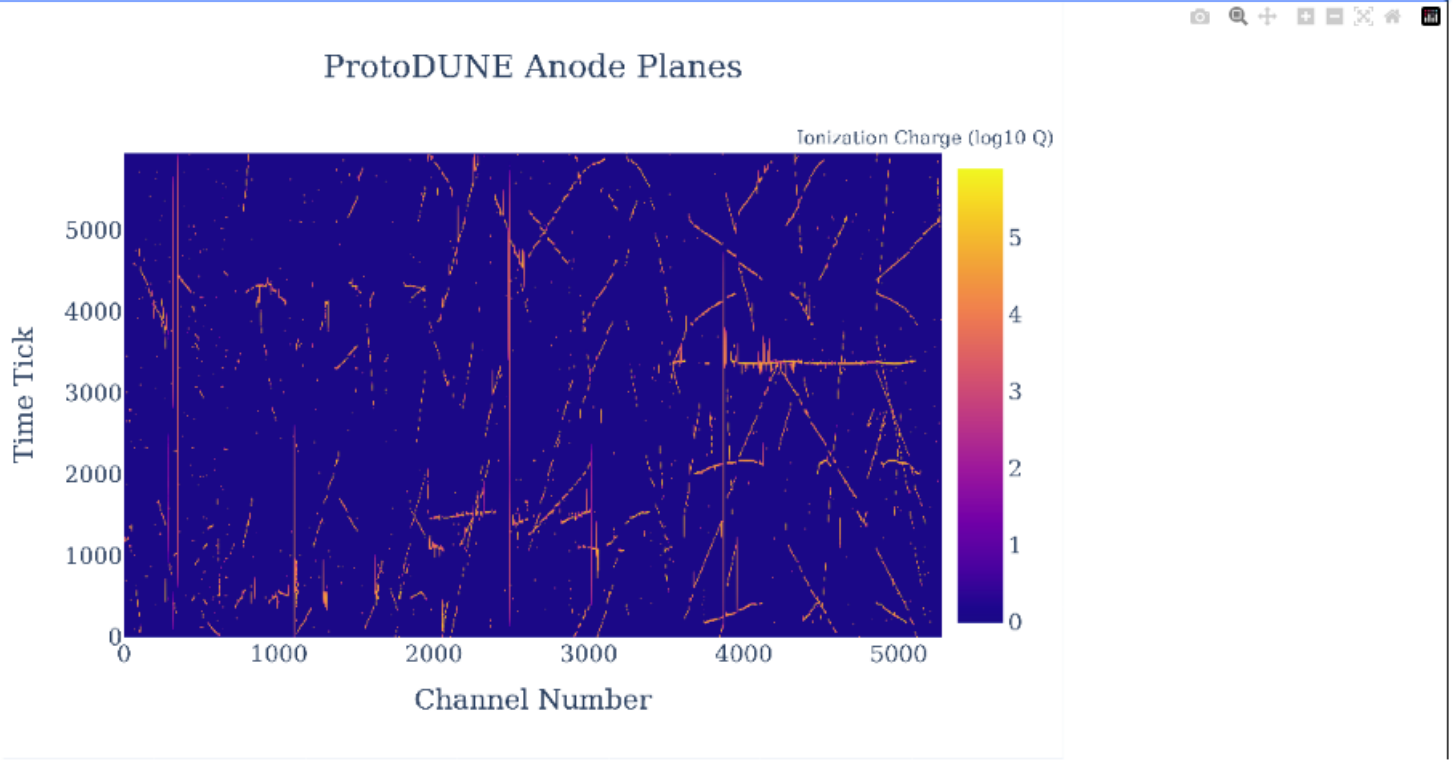
- Extracts the run and event numbers;
- Plots the heatmap of ionization charge and exports it as run_{runnumber}_event_{eventnumber}.png

- Gets the .png images plus a .npz which metadata is included;
- Displays the figure according to user request!

From Gabriela

Number of Ionization Charge at Anode Planes

Run
26952
Event
99

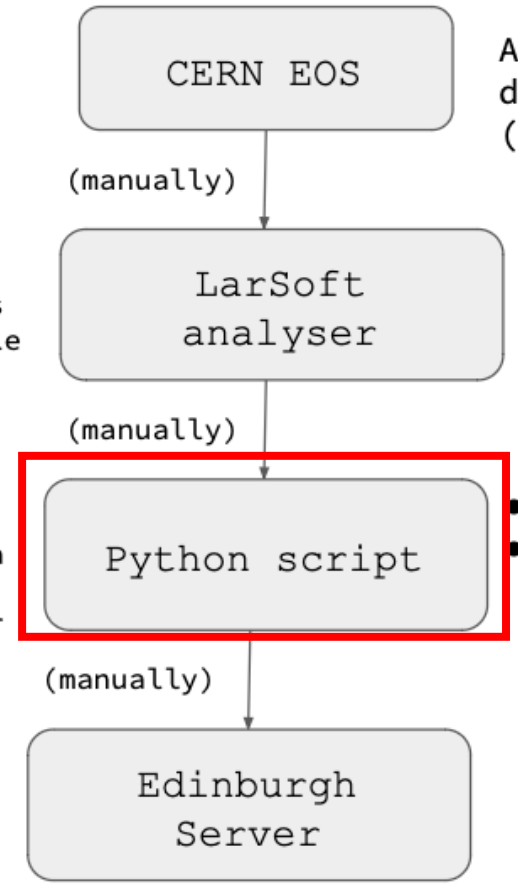


User Interface at Edinburgh : https://dunedash.edi.scotgrid.ac.uk/;

From Gabriela

Improve

Path of the Data



Approximately 1 hour after data is recorded by DAQ (Wenlong)

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Outputs Art rootfile

Takes around 40 seconds to generate a single high resolution image. For 100 events, 1 hour!

- Extracts the run and event numbers;
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Gallery root script
Add some plots

- Gets the .png images plus a .npz which metadata is included;
- Displays the figure according to user request!

For us, I run it on dunegpvm11

Demo

Plots available now:

- Baseline
- Waveform; before&after noise filter
- RMS; before&after noise filter
- Spectra vs frequency; before&after noise filter
- Channel-to-channel correlation; before&after noise filter

On your local terminal:

```
ssh -N -f -L localhost:8050:localhost:8050 <username>@dunegpvm11.fnal.gov
```

http://127.0.0.1:8050/

Next

- More plots:
  - Hit finding information
  - Summary plots of different runs
  - …
- Improve the interface.
  - Move to Django
  - …
- Reduce running time.
- Setup automatic process