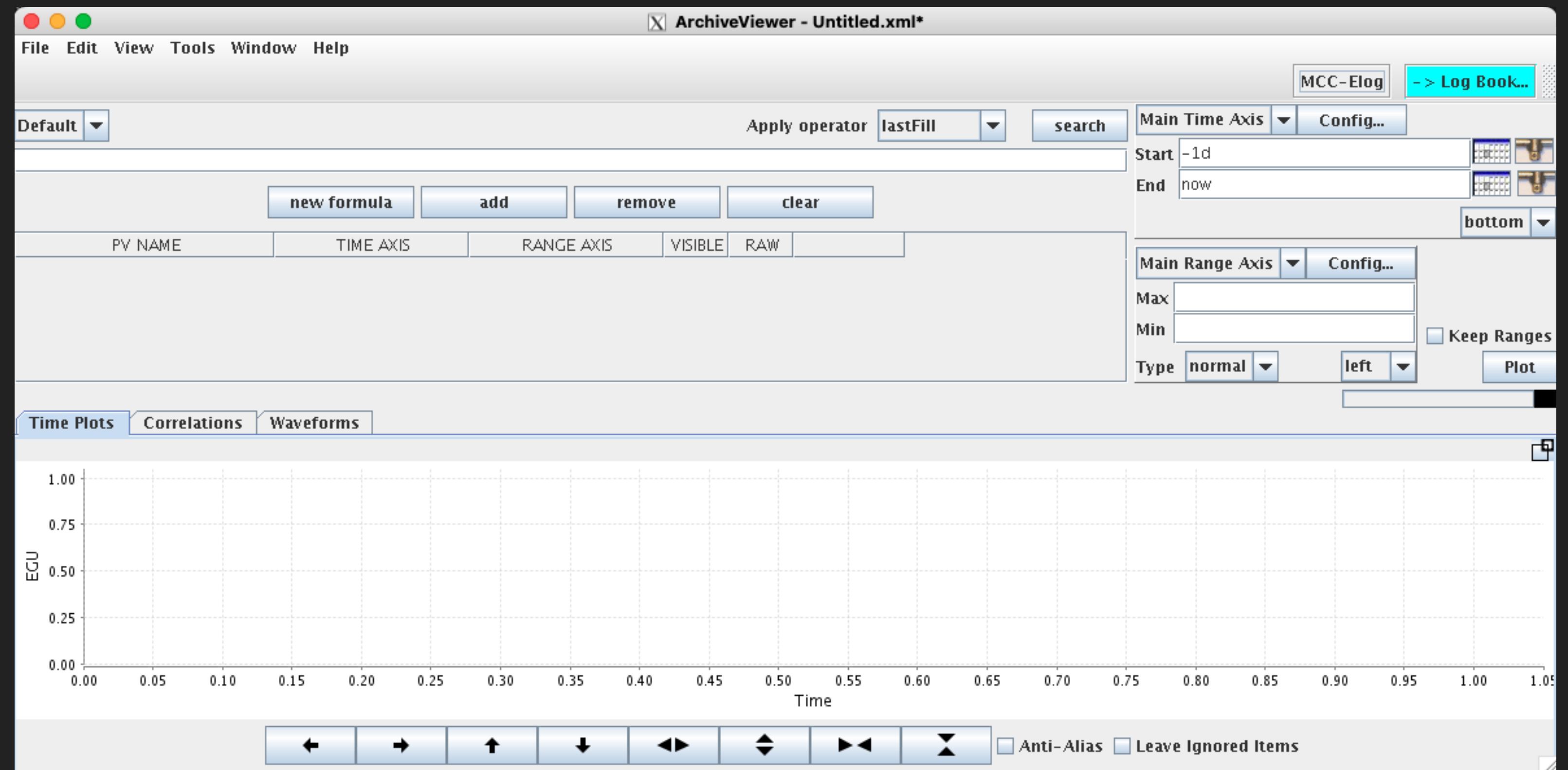CONTROLS SW GROUP MEETING 4/27/23, YEKTA YAZAR

PYTHON ARCHIVE VIEWER

ARCHIVE VIEWER REPLACEMENT: MOTIVATION

▸ Replace current Java based Archive Viewer with a PyDM version. Part of consolidation of apps and tools to python.

▸ Goal: Capture features of the java version plus more

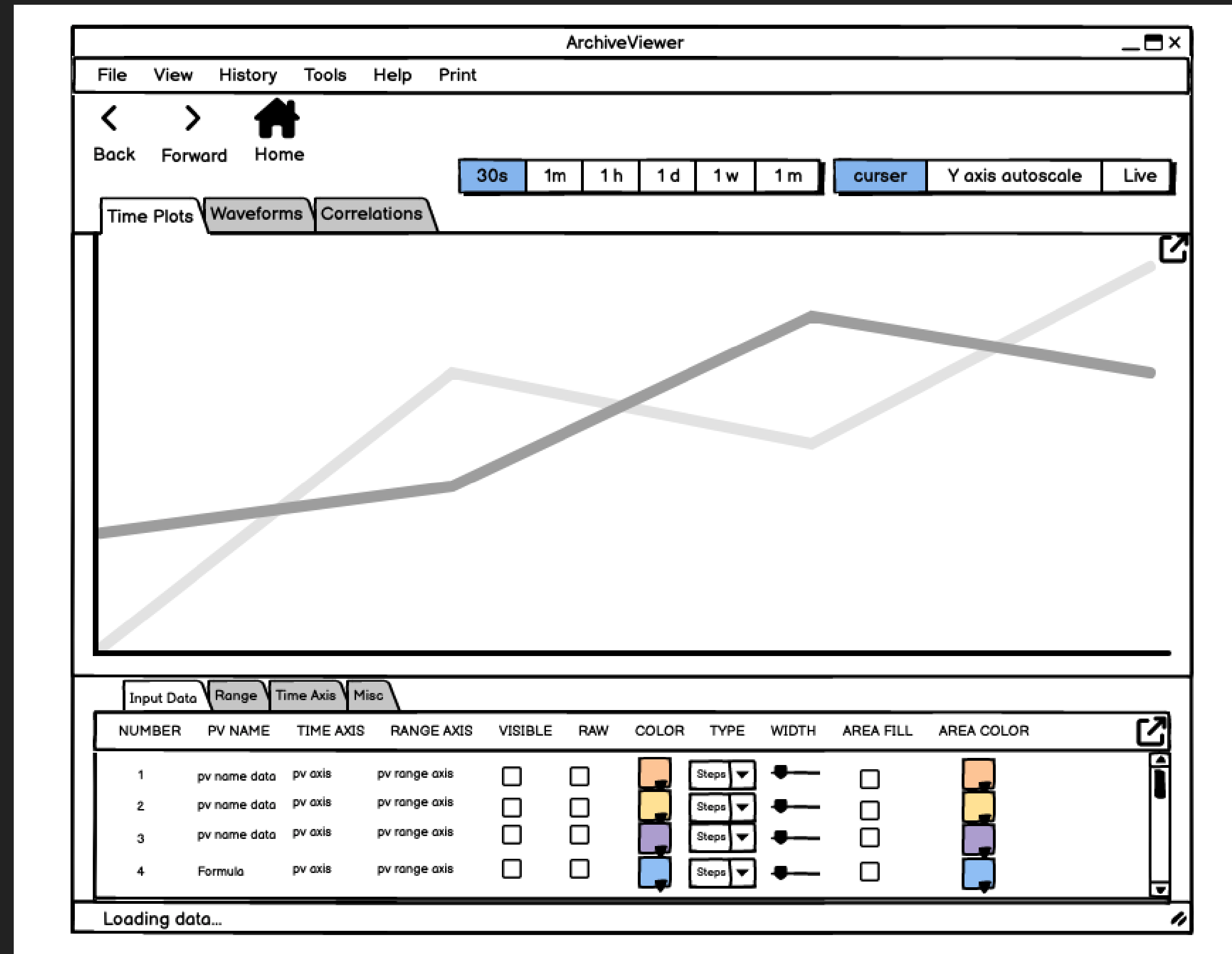▸ Name recommendations for the new PyDM based archive viewer would be appreciated!

Current Archive Viewer

ARCHIVE VIEWER REPLACEMENT: PLAN

▸ Roll out in two phases:

   A.   Phase 1: Matching original capabilities

   B.   Phase 2: Including pvaccess data types and post processing
        tools

▸ Plan is to get phase one out as soon as possible (Target: late
   summer)

- Requirements document under review.

  - Will be sent out to you shortly for comments

- Link to interactive mock-up:

 - https://balsamiq.cloud/siem aja/pvhdicz/r2278?f=N4IgUi BcAMA0IDkpxAYWfAMhkAh HAsjgFo4DSUA2gLoC%2BQA %3D

Mock-up of Python Archive Viewer

ARCHIVE VIEWER REPLACEMENT: REQUIREMENTS PT. 1

‣ Plot Area:

　　‣ Most of the application area will be the plot view section, this can be spun off into its own window.

　　‣ Sections with configuration settings can be also separated into their own windows for convenience.

　　‣ The overall idea is to have a modular application with can be configured to meet the layout needs of the user
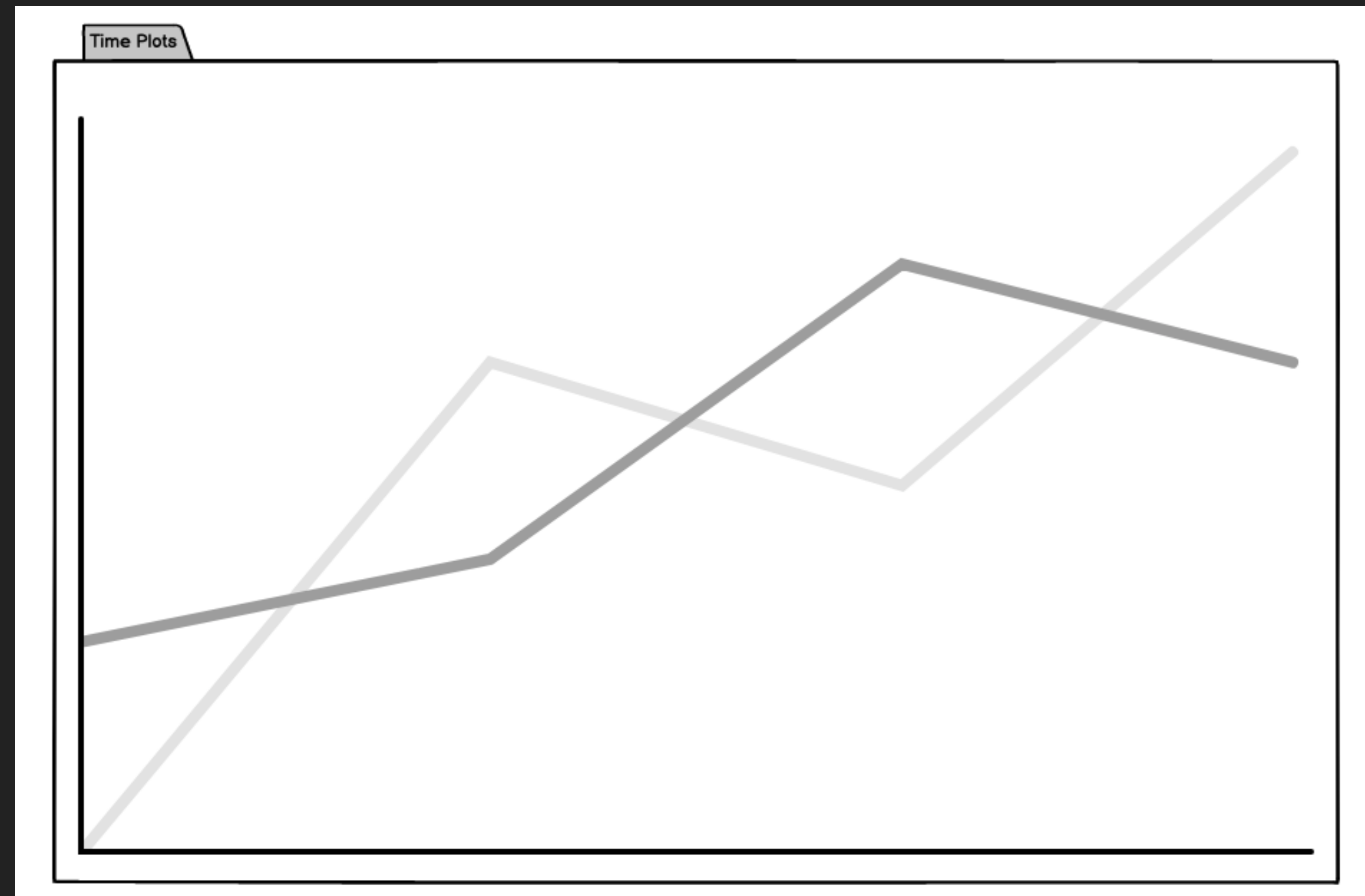
Time plot

ARCHIVE VIEWER REPLACEMENT: REQUIREMENTS PT. 2

▸ PV List:

  ▸ PVs can be added by being typed out directly or via copy paste, or PV search (next slide!)

▸ Ability to add formulas, (envisioned to be similar to how rules work in PyDM).

  ▸ A formula can be used in other formulae.

ARCHIVE VIEWER REPLACEMENT: REQUIREMENTS PT. 3

▶ PV Search:

  ▶ Gives the user the ability to search for a PV and then drag in the ones they want onto the pv table. Which will then be automatically plotted.

▶ A version of this is already working, thanks to Jesse Bellister

PV Search Menu

PV Table

ARCHIVE VIEWER REPLACEMENT: REQUIREMENTS PT. 4

▸ Plot Axes Stuff

   A. Split axes into subplots with shared x-axis.

   B. Optional full page mode for the plot

   C. Option for achieved + live data

   D. Multiple Y-axis, zoom in/out or pan entire plot comes with pydm plot widget.
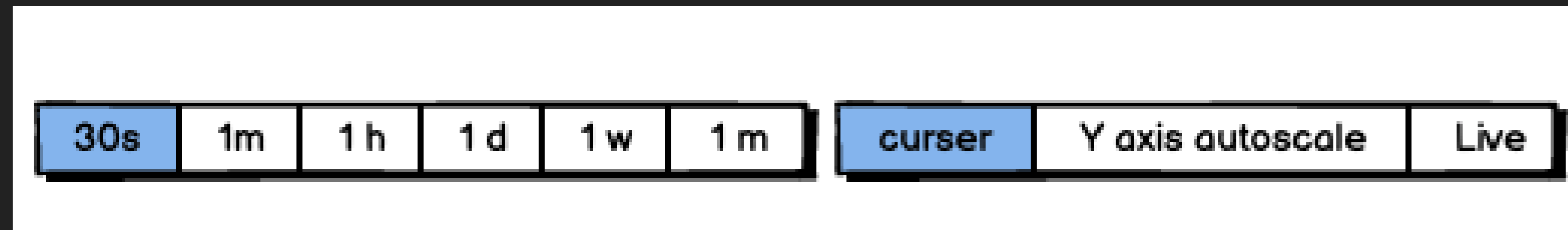
Popular plot setting the can be quickly accessed
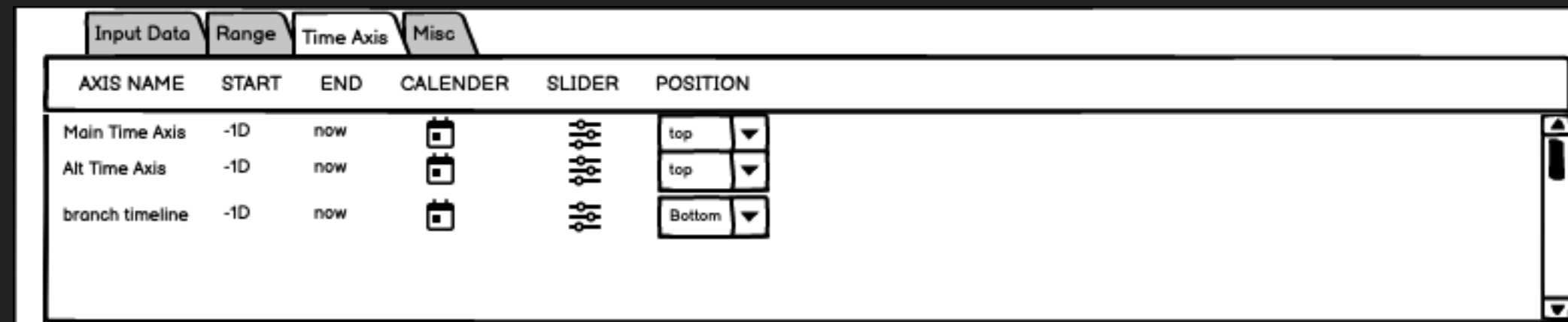
More plot settings
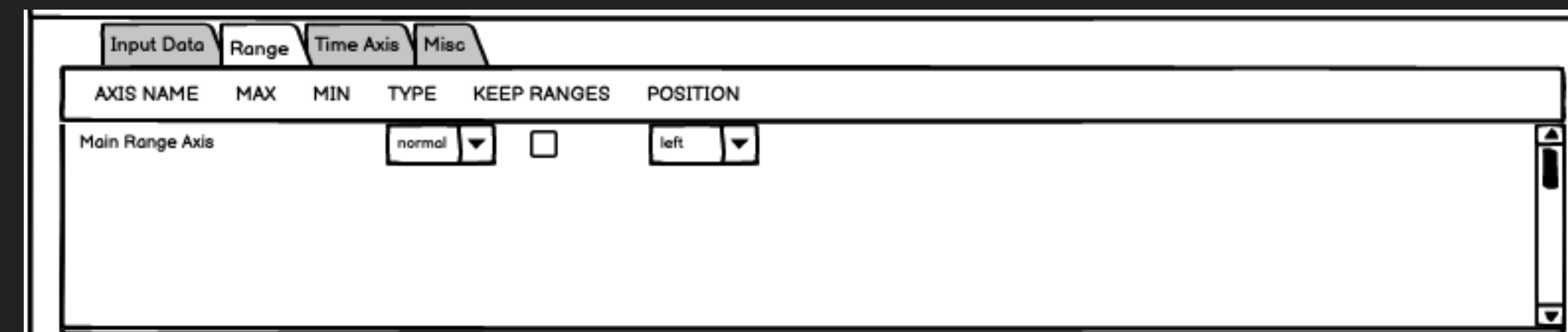
Even more settings

ARCHIVE VIEWER REPLACEMENT: REQUIREMENTS PT. 5

▸ Optimized Data Retrieval from the archive

  ▸ The plot displays both archived and live data. Live data will fill up a buffer, the rest of the timespan is filled with archived data.

  ▸ The archiver API provides an efficient optimized retrieval, so the data for long requests are binned. As you zoom in, the density of data is automatically updated until all the available data is displayed.

  ▸ NaNs will be ignored.

Mock-up of Python Archive Viewer
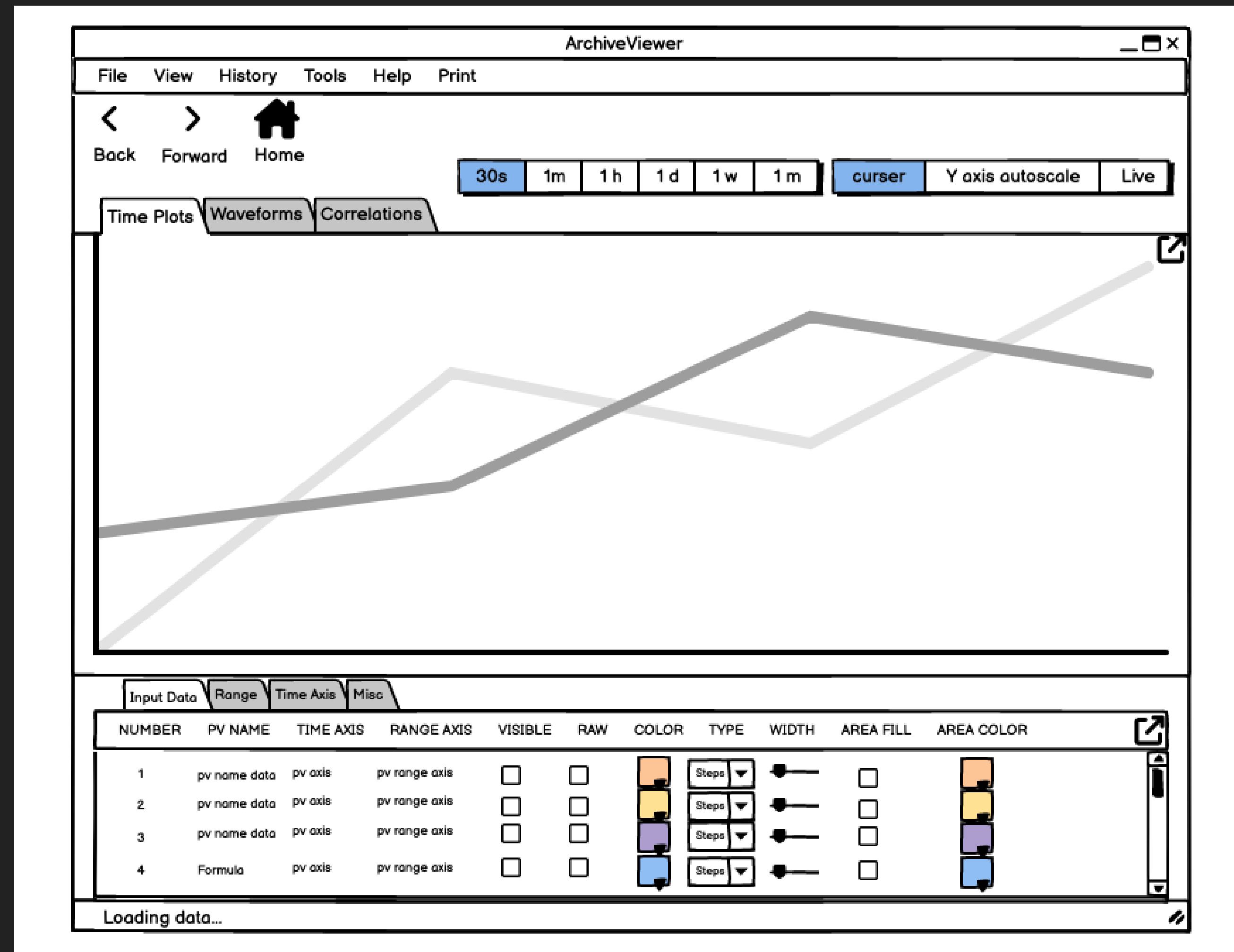
ARCHIVE VIEWER REPLACEMENT: REQUIREMENTS PT. 6

▸ Exporting data file types

  ▸ CSV (optimized or in raw data form)

  ▸ Also be able to save to data in the view data feature

▸ Plot file information

  ▸ Ability to load old Archive Viewer files into the new application, or simply convert the old file format to the new one

 ▸ The configured plot and all its options will need to be save-able so it could be reopened later
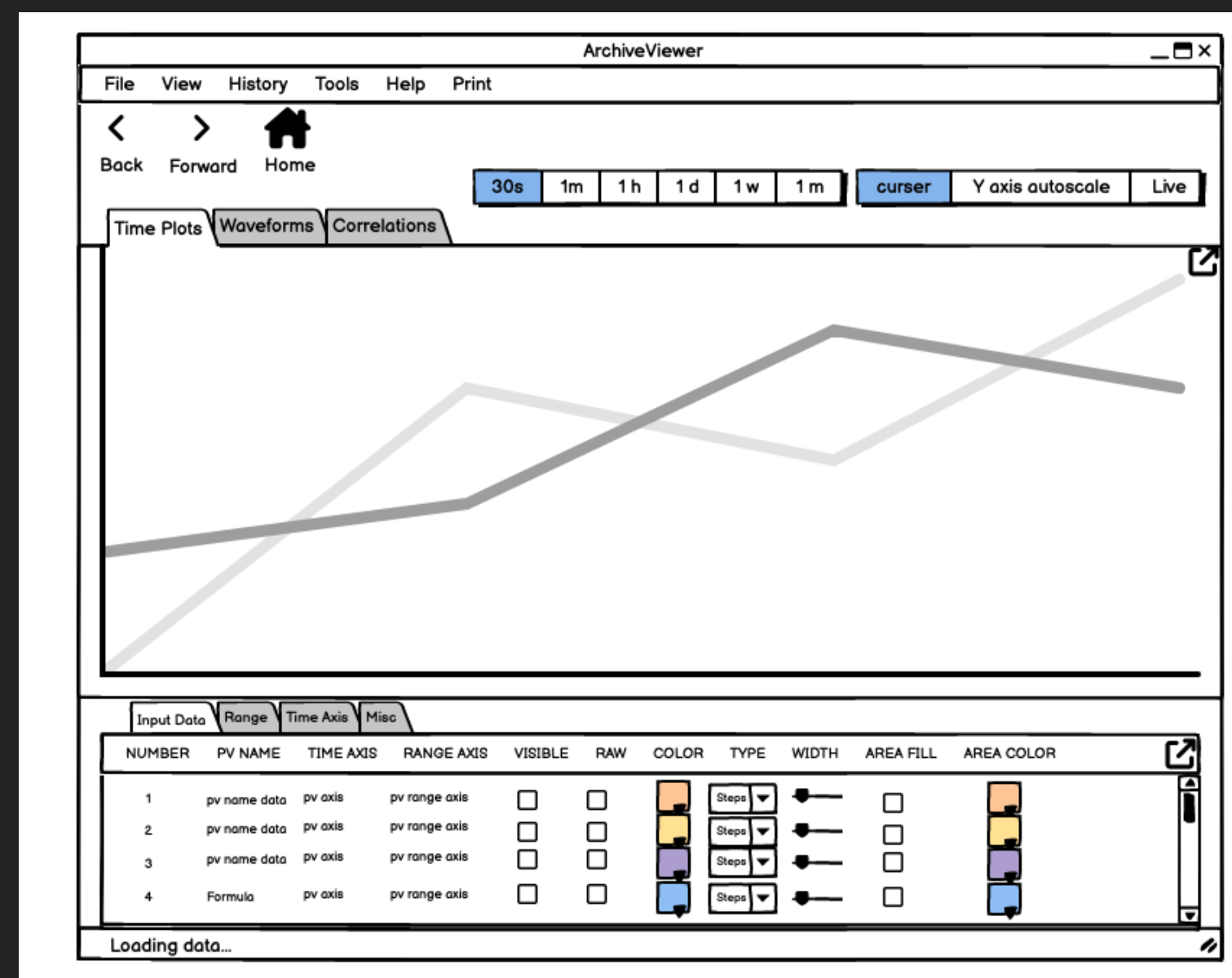
ARCHIVE VIEWER REPLACEMENT: REQUIREMENTS PT. 7

▸ Phase 2:

▸ Post processing tools: a host of post processing tools are being considered.

▸ Ignore Outliers

▸ Median filter

▸ RMS filter

▸ Etc.

▸ William is having a summer intern work through some of these functionalities for a similar application. An assessment of these tools and whether they can be merged into the archive viewer will be looked at after the first version is complete. (Target: Fall 2023)

▸ New EPICS 7 data types such as tables and images which may require a custom method for viewing archived data

END NOTES

▶ Feel free to reach out to myself (Yekta) and/or Tasha Summers if you have any feedback, feature requests or additional questions on the new archive viewer
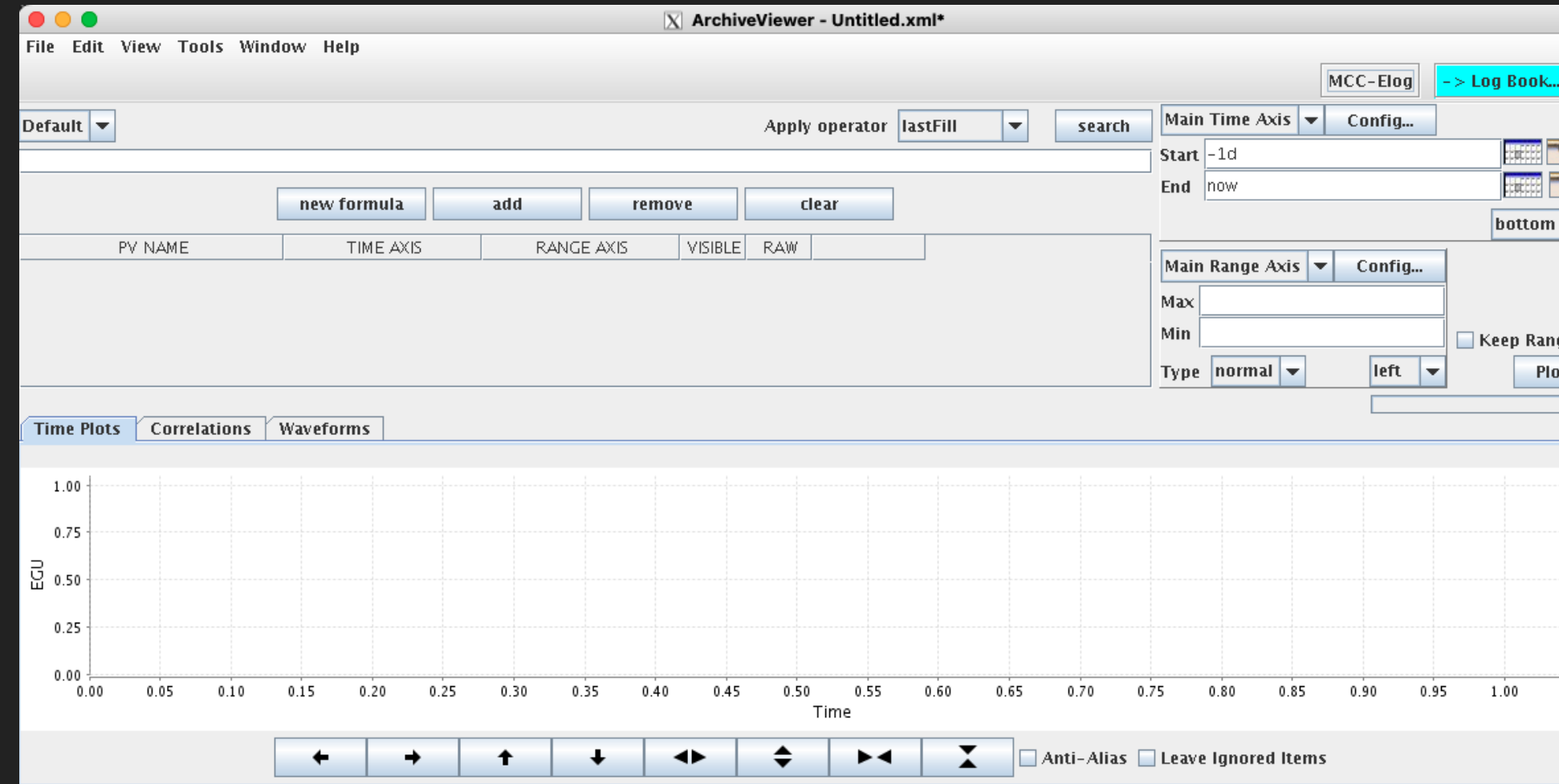
Current Archive Viewer

Mock-up of Python Archive Viewer