Data Exploration User Manual

Created By: Oak Ridge National Laboratory
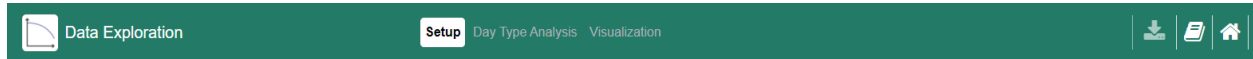
Last Updated: 3/9/2022

Table of Contents

Module Navigation

Use the top banner to navigate around the module. A footer bar with "Next" and "Back" button can also be used to move through the Setup to the Day Type Analysis.

Main Tabs

Setup – Upload and format the data to be used.

Day Type Analysis – Conduct analysis on time interval data to determine day types.

Visualization – Create and customize a variety of graph types based on your uploaded data.

*Some of the tabs will be disabled until the Setup is completed.

Additional Buttons

Download – Download a .json file of the current state of your data exploration module. Files can be uploaded later in setup to restore the current state.

Book – The book will open a new window with the Compressed Air User Manual you are reading.

Home – The house will bring you to MEASUR's home page.

Setup

The setup is where you upload and select the data to include in the Data Exploration.

Navigation

Use the second bar to navigate to different sections of the Setup. The tabs will be color coded to indicate the state of the corresponding tab data. Tabs will be disabled if the previous steps have errors in their data.
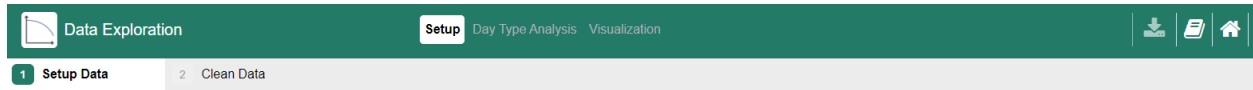
Setup Data – Upload data files

Clean Data – Tell the explorer more about the data you are using.

Tab colors:

Green - Valid data entered for tab.

Red – Invalid or missing data entered for tab.

Gray – Disabled tab, previous tabs are incomplete.

Setup Data

The data explorer will take in .csv, .xlsx, or .json data files. Only .json files previously exported from the Data Explorer are permitted. It should be noted that larger data files may take longer to parse and analyze.

First choose the file you wish to upload. Depending on the file type there may be additional steps. For .xlsx files you will have to choose the workseet that the data you wish to use is in and the header row for the data table. A preview of the worksheet table is provided.

Once the worksheet and header row are selected click the "Parse CSV Data" button and the explorer will parse the data.

If you make a mistake at any time during this process you can click "Start Over" to clear out your data and start again.

Clean Data

Once data has been setup, the next step will be to clean the data.

To clean your data for exploration:

- Select the columns you wish to include
- Identify which column is a date or time (a date or time column is necessary for Day Type Analysis)
- Provide an "Alias" or label you wish this data column to have throughout the explorer.
- Add a "Unit" label that will be applied to the data in the explorer.

Once your data has been "cleaned", click on the "Submit" button and you will be ready to continue to "Day Type Analysis" or "Data Visualization".
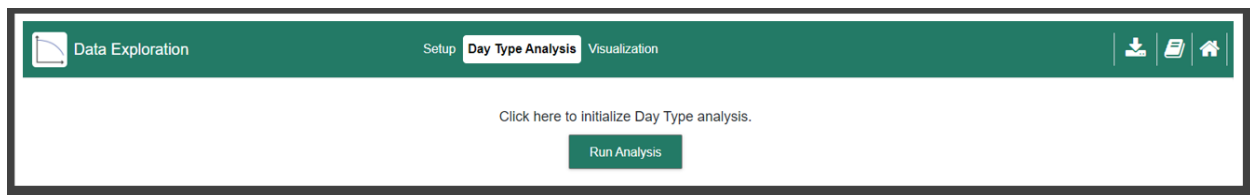
Day Type Analysis

The "Day Type Analysis" section provides the ability to break your data down into "Day Types" or similar days of system operation. **A date or time field is required in your data for analysis.**

Run Analysis

To start you will have to click the "Run Analysis" button. This will organize your data into days and then determine if those days are in one of three categories:

- Weekend
- Weekday
- Excluded (not a full days worth of readings)

Managing Day Types

As stated above, initial analysis will separate your days into three default day types. The days and their corresponding day types will be displayed in the calander at the bottom of the "Day Type Analysis" screen.
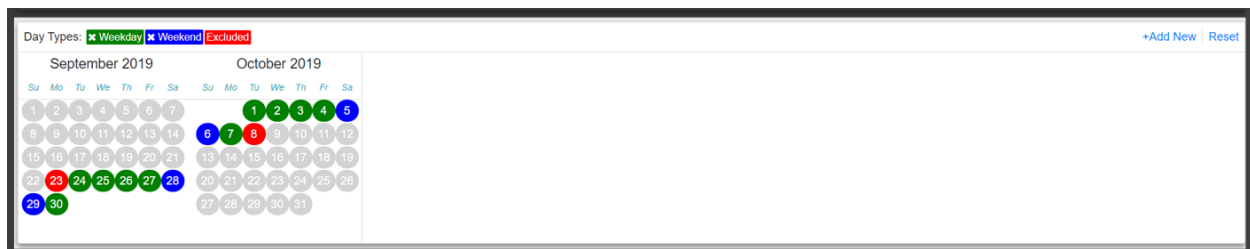

Use this calander to manage your day types and their corresponding days by:

- Clicking the dates to toggle the day type of that date.
- Removing day types completely by clicking the day type labels at the top.
- Creating additional day types with the "+Add New" link in the upper right.

Day Type Exploration

The data and day types can be explored in a variety of ways using the menu at the top to:

- View the data graphically or as a data table (top left)
- Toggle between viewing days or day types (top right)
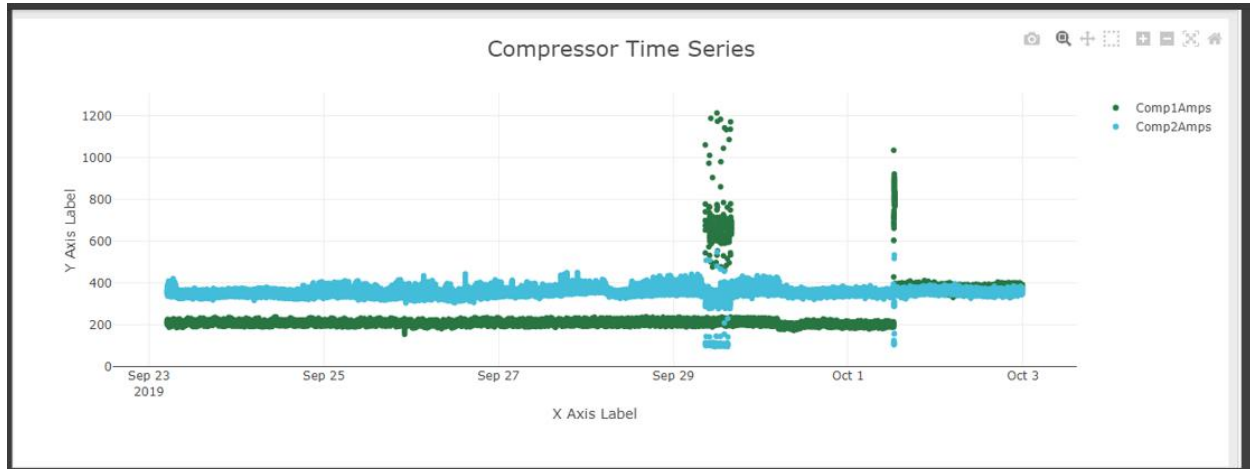- Select the data column using the dropdown (top right)
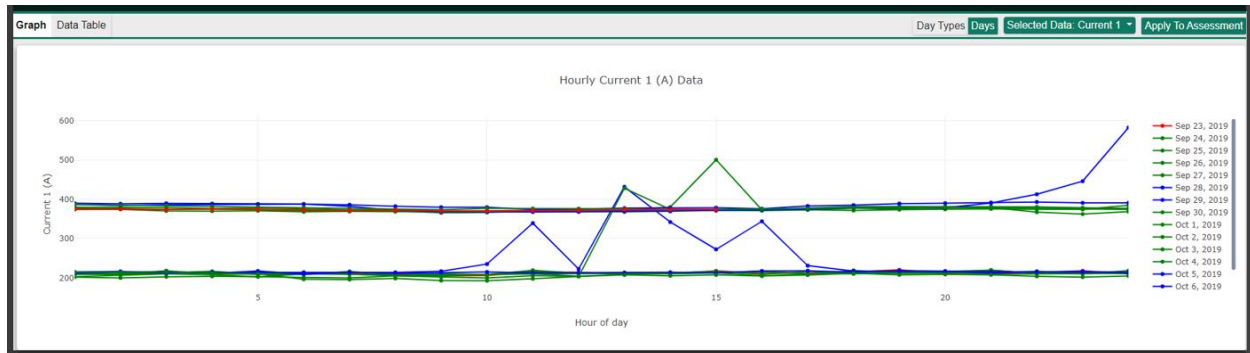
*Note if using compressed air data: Once day type analysis is completed and your are happy with the day types, you can click the "Apply To Assessment" button in the upper right hand corner. This will allow you to apply the day types to an existing compressed air assessment or start a new assessment with the day type data.

Visualization

Use the "Visualization" tab to generate scatter plots and histograms of your data.

*Note: This feature is a work in progress and can currently run slow with lots of data in the system.

Modify Chart

Use the menu on the left hand side of the screen to customize the chart.

Choose the type of plot you want between "Scatter" and "Histogram".

If "Histogram" is selected then some options for binning will appear.

Choose the data you want represented by the X Axis. The last option in the dropdown will be "Time Series".

Multiple data variables can be added to the Y Axis. You can select the data and its corresponding color on the graph.

A second Y Axis can be added and will be placed on the right hand side of the chart with the "+Add Axis"

Annotations

You can annotate the chart by clicking on a data point. Once a data point is selected the "Annotations" section on the left hand menu will look like this:

Whatever you add to the text box will be added to the chart. Use he options to customize the size and color of the annotation. Use the arrow buttons to move the annotation.

A list of current annotations will appear underneath this window.

If you leave the Visualization screen or change the data on the graph then the annotations will be removed.

Data Summary and Help

A summary of the data in the chart is provided in a table at the bottom of the page. Additionally, some help text with further information can be found underneath the "Help" tab here.