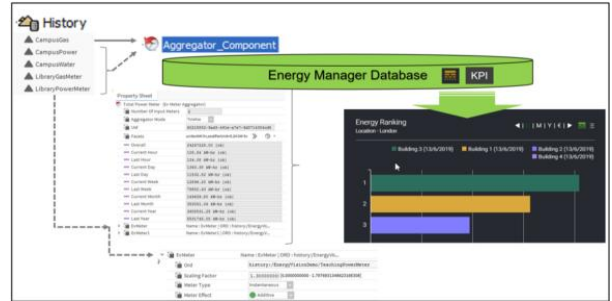


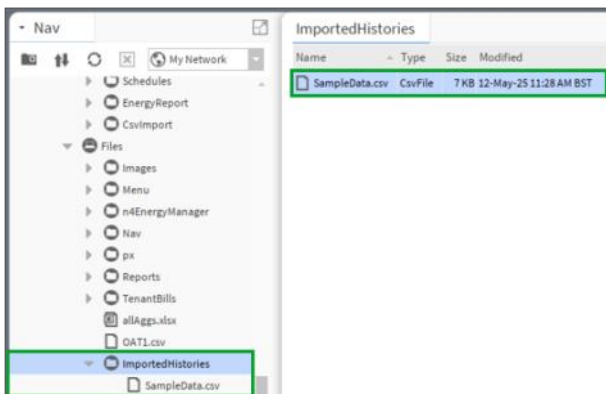
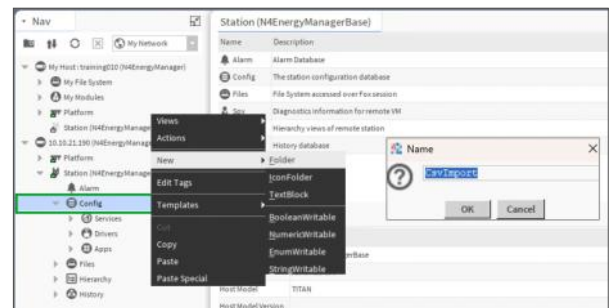
Aggregators

Aggregators are the core of the N4 Energy Manager and connect history data sources to the charts used in the station. Aggregators are virtual representations of physical meters in the field—optional external data can be imported from a CSV file, eg old history data from other stations etc. An Aggregator's job is to normalise real meter data into virtual meters to be used for charts and reporting. Multiple sub-meters in the field can be merged into a single Aggregator to represent a certain area or section of a building or site, and/or subtract renewable from non-renewable energy. Each Aggregator can contain up to 150 meters, which can be created manually or imported via the SiteHierarchy in the N4 Energy Manager Service in the station.

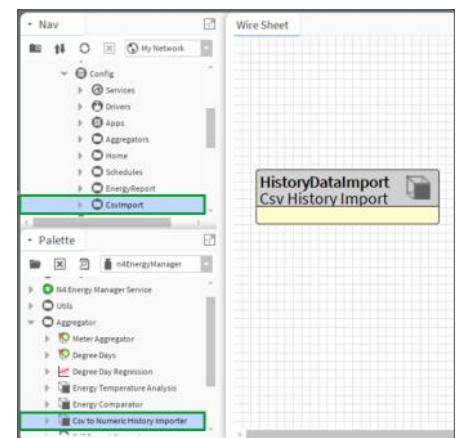


CSV History Import

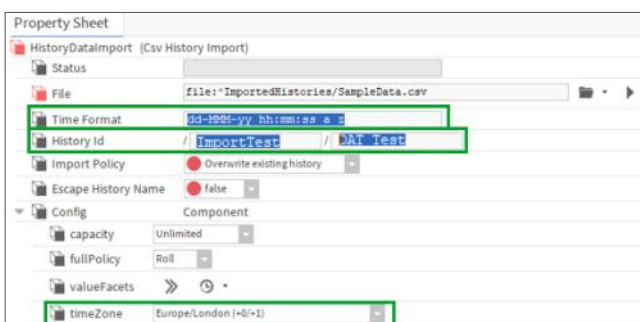
Histories are the key part that make up an Aggregator as it relies on good quality past data. If a station has been newly created and history data is not directly available, old data can be imported from a CSV file created from other sources. A folder must be created under Config to hold the configuration for the import—please see the example screenshot on the right where the folder has been called CsvImport.



Another dedicated folder is required in the File system of the station. Any CSV files that history data is imported from must reside within the station, so the required CSV files must be copied into this folder before the history data can be imported from the file.

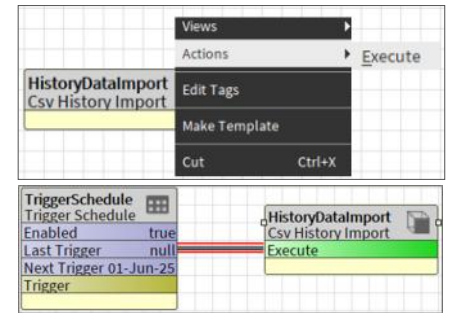
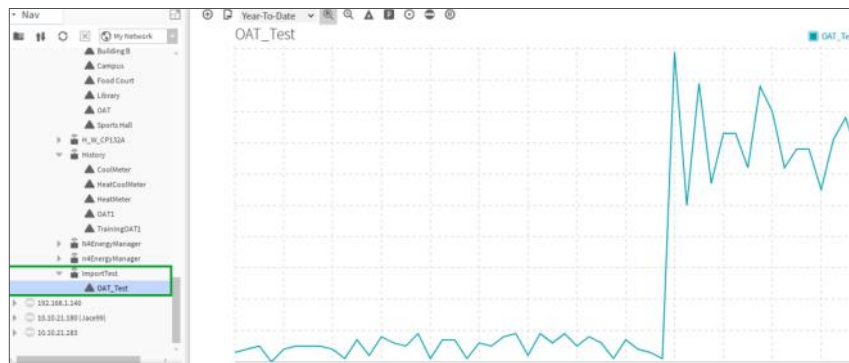


The Wiresheet of the CsvImport folder must be configured with a CsvToNumericHistoryImporter Component, which can be dragged and dropped onto the page from the Aggregator folder on the N4 Energy Manager palette.



The CsvToNumericHistoryImporter Component must be configured to match the time format used in the CSV file, and have the same time zone set up as the Niagara platform. The History ID property defines the name of the history folder and point that will be created during the import process.

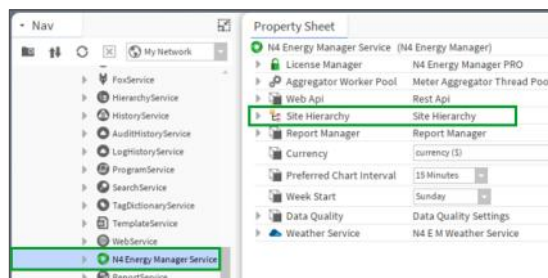
The HistoryImport Component can either be triggered manually from the Wiresheet, or linked to a Trigger schedule if there is another station that regularly supplies the CSV data so it can be triggered at a specified interval.



Once imported, the History ID specified in the Import Component will be visible in the history section of the station and display graphs and charts.

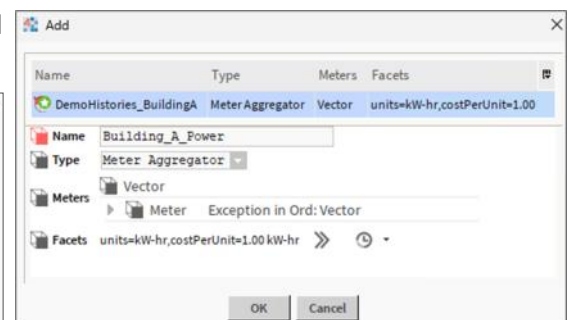
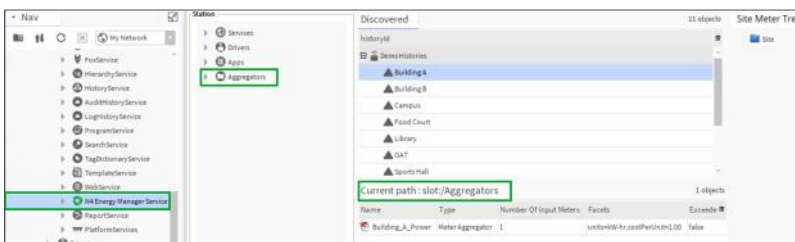
Aggregator Creation

Aggregators are grouped into a folder under Station-Config and configured using the N4 Energy Manager Service, so a dedicated Aggregators folder must be created first.

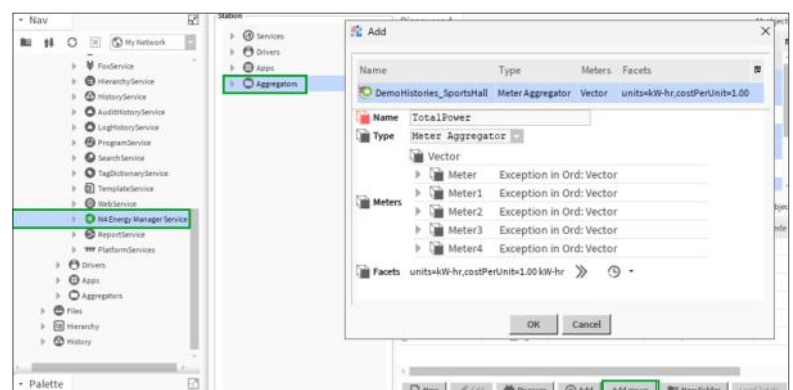


Start the Aggregator configuration by double clicking on the Site Hierarchy in the N4 Energy Manager Service under Station—Config—Services.

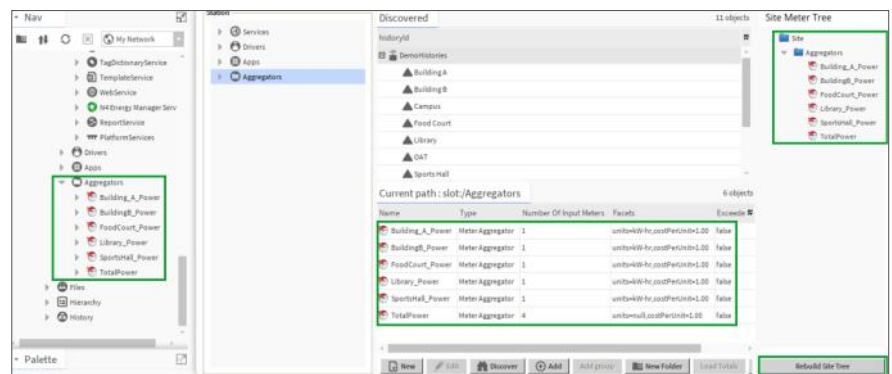
When the Aggregators fold is double clicked, it shows as a path in the bottom part of the View pane and allows histories to be expanded and added into it. They can be renamed and have Facets assigned to suit.



Multiple histories up to a limit of 150 can be added to the same Aggregator by multi selecting the require historied and clicking the Add Group button at the bottom. Please note that each history is called a Meter within the Aggregator, but it purely contains history data.



Once one or more Aggregators have been created, the Site Tree must be rebuilt within the N4 Energy Manager Service to make them viewable in the Aggregators folder under Config. This is done by clicking the Rebuild Site Tree button and can be checked under the Site Meter Tree in the Service

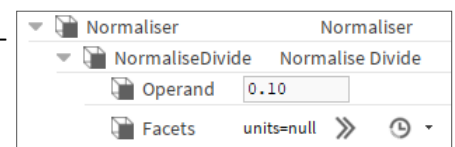


Aggregator Properties

Data Normalisation

The Aggregator Output can be normalised to calculate metrics like power consumption by area or employee, etc. This is done by adding a Multiply or Divide as a **Scalar Normaliser**.

An Aggregator can be added to normalise the data of an Aggregator as a **Vector Normaliser**. More information on this can be found in the Energy Manager Guide in the Data Normalisation section.



Aggregator Mode

An Aggregator has 2 modes:

- Totalise** — Meter readings are **added** across time intervals and across all linked Meters/Histories
- Average** — Meter readings are **averaged** across time intervals and across all linked Meters/Histories

