

Kibana

Kibana est l'outil de visualisation fonctionnant avec Elasticsearch. Il permet de créer des requêtes Elasticsearch via une interface graphique et affiche les graphes obtenus.

Il est accessible depuis le portail Live Objects dans l'onglet "Données". Kibana permet de visualiser des cartes géographiques, des graphes en ligne, des histogrammes, des camemberts et des tableaux.

Kibana is the visualization tool of Elasticsearch. It makes it possible to create Elasticsearch queries via a graphical interface and displays the obtained graphs.

It is accessible from the Live Objects portal in "Data" tab. Kibana allows you to view maps, online graphs, histograms, pie charts and tables.

Creating visualizations

To use the examples below, you will need to adapt them to your purpose and data model.

In particular, for LoRa® objects, you need to decode the messages, that means to convert them from the LoRa® compact format into a JSON format indexed by Live Objects, using our "decoder" function.

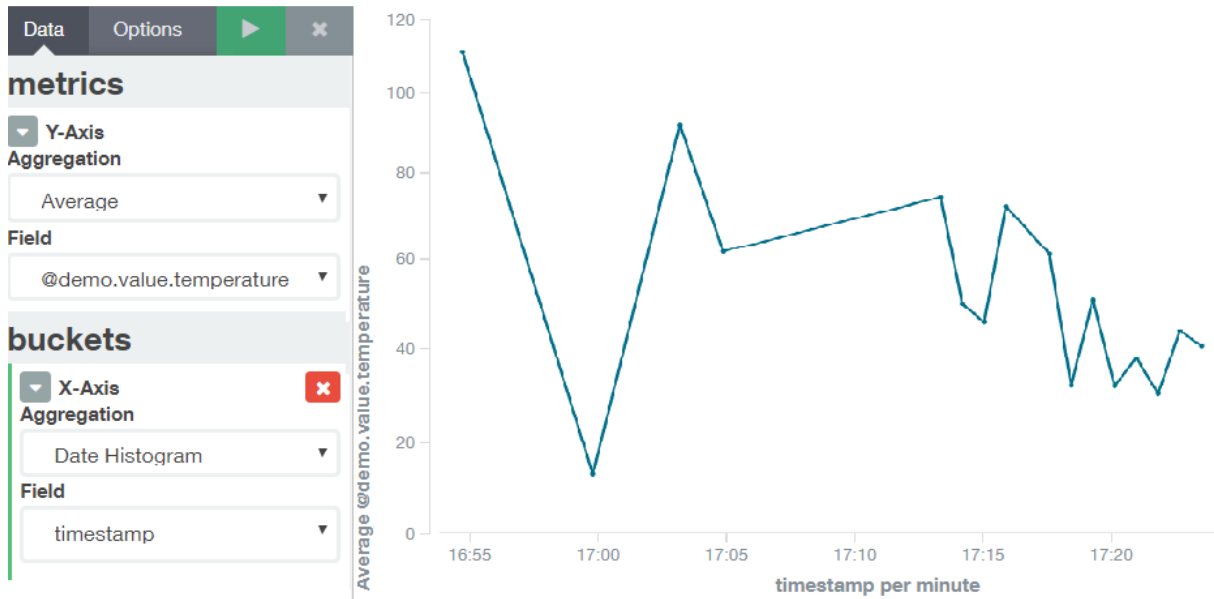
1.1 Creating a simple visualization (line chart)

To create a simple visualization showing the data of a temperature sensor as a function of time, for example, choose the time range to filter by clicking on the date on the top right of Kibana.

Then look for the sensor data in the Discover tab. According to its data model, you can, for example, see how its data is saved in `@<model>.value.<Field>` for example `"@demo.value.temperature"`

To create the graph, go to the Visualize tab and choose "Line chart" in the list of visualization types.

Navigate to the chart creation page. The "metric" part corresponds to the data to visualize, choose an average on the temperature by selecting "Average" then `"@demo.value.temperature"`. The "buckets" part corresponds to the X axis, we choose the time by selecting "Date histogram". In this example, you get:



Creating a simple graph with Kibana

With this graph, you will also have the Elasticsearch query created automatically. It is possible to copy this request to use it in an external application. To finish this visualization, we save it by clicking on the button at the top right.

Kibana allows you to create dashboards in the Dashboard tab. By clicking on the "Add" button, you can find the visualization previously created and place it on the dashboard.

1.2 Creating a visualization of the last value of a sensor

Getting the last value of a sensor is only possible on some visualization with particular options. The following example is realized with a histogram.

First, filter on the object you want to display, for example with: `metadata.source: "urn:lo:nsid:electrogene:e05"`. Select the field for which you want to display the last value in the "metrics" part.

Then create a bucket with the settings in the table below.

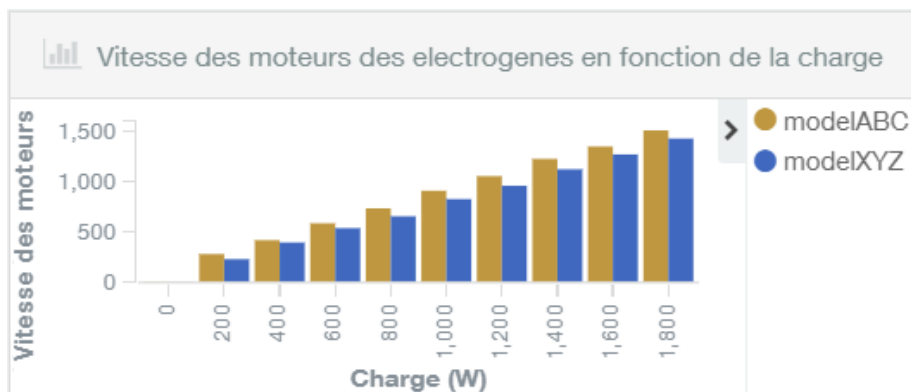
| Field | Selection | Comment |
|-------------|---------------|--|
| Aggregation | Terms | We will group messages according to the value of the timestamp |
| Field | timestamp | |
| Order By | Custom Metric | Messages are sorted from the largest timestamp to the smallest |
| Aggregation | Max | |
| Field | timestamp | |
| Order | Descending | Only one message will appear |
| Size | 1 | |

Kibana settings to get the last value of a sensor

This works on a histogram and on a map, however the rendering is limited because it is a single stick in a histogram or a single point on a map.

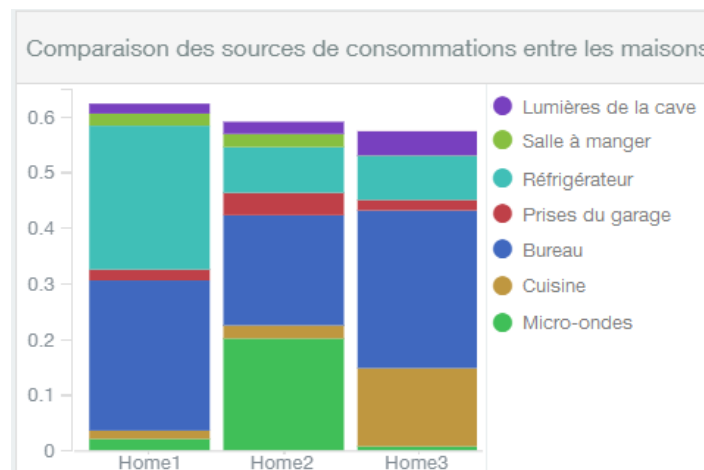
1.3 Data crossing

Kibana allows you to choose any data on both axes. This makes it possible to cross the data coming from the same types of messages. For example, the figure below correlates the data of two models of generators and allows to detect a malfunction: the graph shows that the ABC model has a greater motor average speed than the XYZ model, whatever the charge.



Crossing data visualization with Kibana

The figure below shows another type of data correlation using smart meter data. Comparing the electricity consumption of houses, it is possible to detect abnormally energy-consuming sources, like the refrigerator of the house 1.



Kibana visualizations for smart metering