



VERSION: 1.0.0

DATASIGHT

USER MANUAL

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VERSION HISTORY

Version	Date	Comments
1.0.0	14/03/2024	First Release

1. Introduction

DataSight is a data collection and sanitization application for the Siemens Industrial Edge. The application allows users to collect the data from the IIH service and create datasets for visualization and analysis.

Using the application the users can select any number of signals available in the IIH service to combine into a single dataset for ease of analysis. The signals from the IIH service can be filtered based on asset, aspect, or adapter.

The application includes a custom client that connects directly to the IIH service to poll information for available assets, aspects, adapters, and the signals available for each.

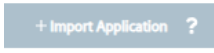
1.1 Pre-Requisites

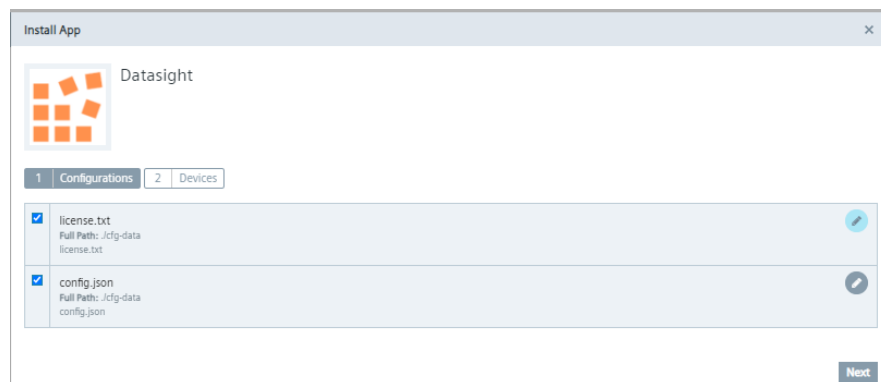
To deploy the connector, the following pre-requisites must be met:

1. Siemens Industrial Management System deployed.
2. Siemens Industrial Edge Device deployed and onboarded.
3. IIH Essential Application installed and configured.

2. Application Deployment

The application can be directly downloaded from the ThetaPhi website with a Trial license (limited to 2x datasets). Follow the steps below after downloading the application:

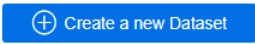
1. Login to the “Industrial Edge Management” application and go to the Catalog page. Click on  in the top right corner.
2. Browse and select the downloaded .app file and click import. Once the import is complete the application will be available in the catalog.
3. Open the application from the catalog and click install .
4. Select “license.txt” and “config.json” files in the configuration tab and click next



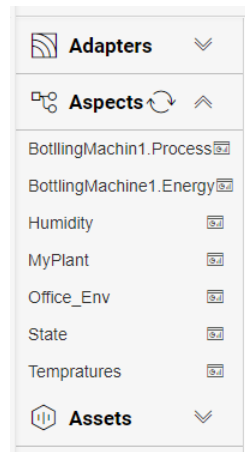
5. Select the industrial edge device where you would like to install the application and click Install Now. This will start the installation process.

3. Creating a new Dataset

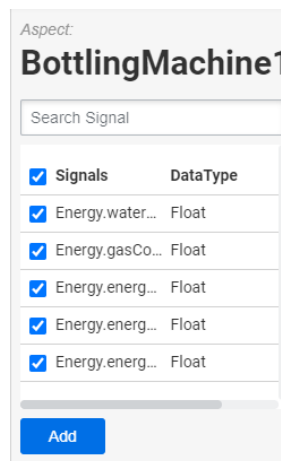
Access the application by logging in to the Industrial Edge Device and clicking on the application tile on the Apps page.

Click on the  button in the bottom right corner of the home page.

From the left Pane select the asset, aspect or adapter that you require the variables from:



Upon making the selection the variable associated with the selected item will be shown in the right pane:



Select the signals to be included in the dataset can click Add.

Specify a Title for the dataset and an optional Subtitle.

Select the dataset type as either Duration or Fixed.

If a Fixed type is selected a start and end time must be specified for the dataset:

Create a New Dataset
Dataset configuration

Title * Subtitle Type* Start Time* End Time*

Fixed Start/Stop or Duration

No	Signal	Asset	Aspect	Adapter	Type	Unit	Remove
1	Energy.waterConsumpti...	Bottling Machine 1	bottlingMachine1.Energy	SIMATIC S7 Connector	Float		Delete
2	Energy.gasConsumption...	Bottling Machine 1	bottlingMachine1.Energy	SIMATIC S7 Connector	Float		Delete
3	Energy.energyConsumpt...	Bottling Machine 1	bottlingMachine1.Energy	SIMATIC S7 Connector	Float		Delete
4	Energy.energyConsumpt...	Bottling Machine 1	bottlingMachine1.Energy	SIMATIC S7 Connector	Float		Delete
5	Energy.energyConsumpt...	Bottling Machine 1	bottlingMachine1.Energy	SIMATIC S7 Connector	Float		Delete

For a Duration type dataset, a duration period can be selected along with the counts for the selected duration period e.g. selecting Days and entering 10 in units will collect the data for the selected variables for the previous 10 days from the time of creation.

Create a New Dataset
Dataset configuration

Title * Subtitle Type* Period* Units*

Fixed Start/Stop or Duration

No	Signal	Asset	Aspect	Adapter	Type	Unit	Remove
1	Energy.waterConsumpti...	Bottling Machine 1	bottlingMachine1.Energy	SIMATIC S7 Connector	Float		Delete
2	Energy.gasConsumption...	Bottling Machine 1	bottlingMachine1.Energy	SIMATIC S7 Connector	Float		Delete
3	Energy.energyConsumpt...	Bottling Machine 1	bottlingMachine1.Energy	SIMATIC S7 Connector	Float		Delete
4	Energy.energyConsumpt...	Bottling Machine 1	bottlingMachine1.Energy	SIMATIC S7 Connector	Float		Delete
5	Energy.energyConsumpt...	Bottling Machine 1	bottlingMachine1.Energy	SIMATIC S7 Connector	Float		Delete

Once the form is complete click on the **Create** button. This will create a new dataset with the status Data generation pending:

Datasets
Configured Datasets

Search

	Type	Period	Units	
Temps	Duration	Days	100	
BM01_Energy Energy consumption Bottling machine 01	Duration	Days	10	Data generation pending

The dataset is added to the queue of datasets for which the data must be collection from IIH service. The status can be reloaded by click on the button. After 30 seconds the status will be changed to "Collecting data from IIH Service". This can take a while depending on the number of signals selected and the duration for the dataset.

Datasets
Configured Datasets

Search

	Type	Period	Units	
Temps	Duration	Days	100	
BM01_Energy Energy consumption Bottling machine 01	Duration	Days	100	Collecting data from IIH Service

Once data collection is completed the buttons to access the dataset become available:

BM01_Energy Energy consumption Bottling machine 01	Type Duration	Period Days	Units 100	
--	------------------	----------------	--------------	--

The dataset Summary can be viewed by clicking on the  button. The buttons also offer direct access to the dataset Trends, Edit and Download functions.

The application interpolates and fills in the missing datapoints for variables to ensure a consistent dataset is generated for all selected signals which allows for easier data analysis.

4. Working with Datasets

Clicking on the dataset's card in the collection shows the signals associated with the selected dataset in the right pane:



Datasets
Configured Datasets

Search

	Type	Period	Units	
Temps	Duration	Days	180	   
BM01_Energy Energy consumption Bottling machine 01	Type	Period	Units	   

Dataset Title: Temps

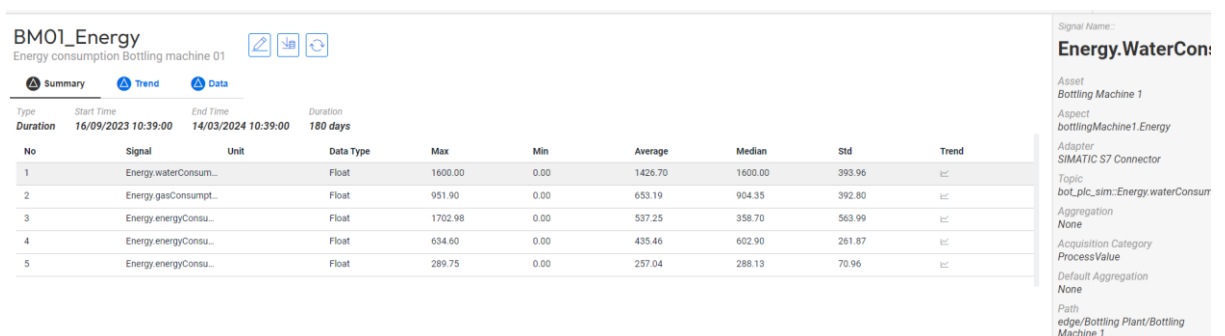
Signals

- Home
- HBD_LH TempC_SHT
- CON_HT TempC_SHT
- OFFICE_LH TempC_SHT

You can open the dataset by click on the  button. This opens the dataset summary page.

4.1 Summary Page

The dataset summary page includes the list of the signals included in the dataset along with some additional information based on the collected data for the specified period. Clicking on a variable shows the information for the selected variable in the right pane:



BM01_Energy
Energy consumption Bottling machine 01

Summary **Trend** **Data**

Type: Duration Start Time: 16/09/2023 10:39:00 End Time: 14/03/2024 10:39:00 Duration: 180 days

No	Signal	Unit	Data Type	Max	Min	Average	Median	Std	Trend
1	Energy.waterConsum...		Float	1600.00	0.00	1426.70	1600.00	393.96	
2	Energy.gasConsumpt...		Float	951.90	0.00	653.19	904.35	392.80	
3	Energy.energyConsu...		Float	1702.98	0.00	537.25	358.70	563.99	
4	Energy.energyConsu...		Float	634.60	0.00	435.46	602.90	261.87	
5	Energy.energyConsu...		Float	289.75	0.00	257.04	288.13	70.96	

Signal Name: Energy.WaterConsumption

Asset: Bottling Machine 1

Aspect: bottlingMachine1_Energy

Adapter: SIMATIC S7 Connector

Topic: bot_plc_sim::Energy.waterConsumption

Aggregation: None

Acquisition Category: ProcessValue

Default Aggregation: None

Path: edge/Bottling Plant/Bottling Machine 1

Trend for individual variable can be viewed by clicking on  icon in the Trend column. To view the trends for the complete dataset, click on the  **Trend** button.

4.2 Trend Page

The trend page shows the trend for all signals included in the dataset along with the legend.



The visibility of trend line for individual signals can be toggled by click on the signal in the legend. The trend also offers zoom functionality for the time-based x-axis and the y-axis. The data used for generating the trends can also be viewed by navigating to the Data page.

4.3 Data Page

The Data page shows the data available in the dataset in a tabular form along with the total number of records (rows) available in the dataset.

BM01_Energy
Energy consumption Bottling machine 01

Summary Trend **Data**

2118090 records available

Timestamp	Energy.waterConsumpti...	Energy.gasConsumption...	Energy.energyConsumpt...	Energy.energyConsumpt...	Energy.energyConsumpt...
21/01/2024 16:24:10	1130.24	25.95	0.18	17.3	203.29
21/01/2024 16:24:11	1213.59	25.95	0.18	17.3	218.55
21/01/2024 16:24:12	1296.94	25.95	0.18	17.3	233.61
21/01/2024 16:24:13	1380.29	25.95	0.18	17.3	248.29
21/01/2024 16:24:14	1463.64	25.95	0.18	17.3	263.1
21/01/2024 16:24:15	1546.99	25.95	0.18	17.3	278.53
21/01/2024 16:24:16	1600	25.95	0.18	17.3	288.19
21/01/2024 16:24:17	1600	96	0.18	64	288.19
21/01/2024 16:24:18	1600	168.9	0.18	112.6	288.19
21/01/2024 16:24:19	1600	238.35	0.18	158.9	288.19
21/01/2024 16:24:20	1600	310.2	0.18	206.8	288.19
21/01/2024 16:24:21	1600	379.2	0.18	252.8	288.19
21/01/2024 16:24:22	1600	451.2	0.18	300.8	288.19
21/01/2024 16:24:23	1600	522.3	0.18	348.2	288.19

For both the Data table and trends 500 rows are loaded at a time. More data can be loaded for the dataset for viewing by clicking on the [Next >](#) button available on both the data and the trend page. Once the dataset has been visually verified as correct the complete dataset can be downloaded in a CSV or Parquet format for further analysis.

4.4 Dataset Download

The dataset can be downloaded from the Dataset's page by click on the  button and selecting the required download format.

4.5 Data Regeneration

A created dataset can be regenerated by clicking on the  button available on the Dataset page. Clicking regeneration for a duration type dataset will cause the application to collect the data again for the specified duration ending at the time of regeneration command. This can be helpful for generating comparison datasets that include the same signals for the same duration of time.

5. Dataset sampling Rate

The datasets created offer a maximum data frequency of 1 seconds. Selected signals that have frequency higher than 1 second are down sampled automatically by the application. For optimum performance it is recommended to configure the variables in the IIH essential application with the frequency required for the dataset. Lower variable acquisition frequency allows for faster the data collection and visualization.

6. Trial License

The trial license (included by default in the application) offers all the available functionality of the application. However, with the trial license only a maximum of 2 datasets can be created at any given time.

Request for a commercial license can be sent using the contact form on the ThetaPhi Website.