

7KN Powercenter 3000 – REST API

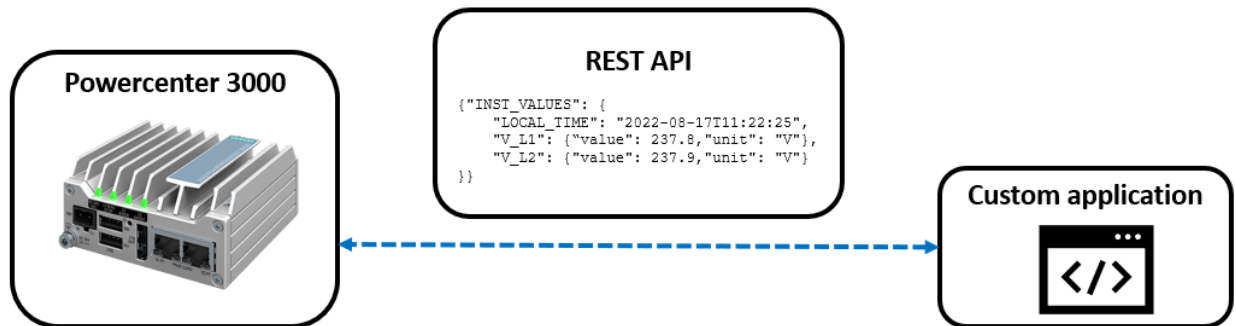
Question:

Is it possible to access 7KN Powercenter 3000 via a web-based REST API?

Problem presentation and suggested solutions:

Powercenter 3000 features a web-based REST API which could be used to access data from connected submeters or to extract historic values. The data is transferred in standard JSON objects.

This document references the online documentation integrated into the device and shows examples of how to use the API.



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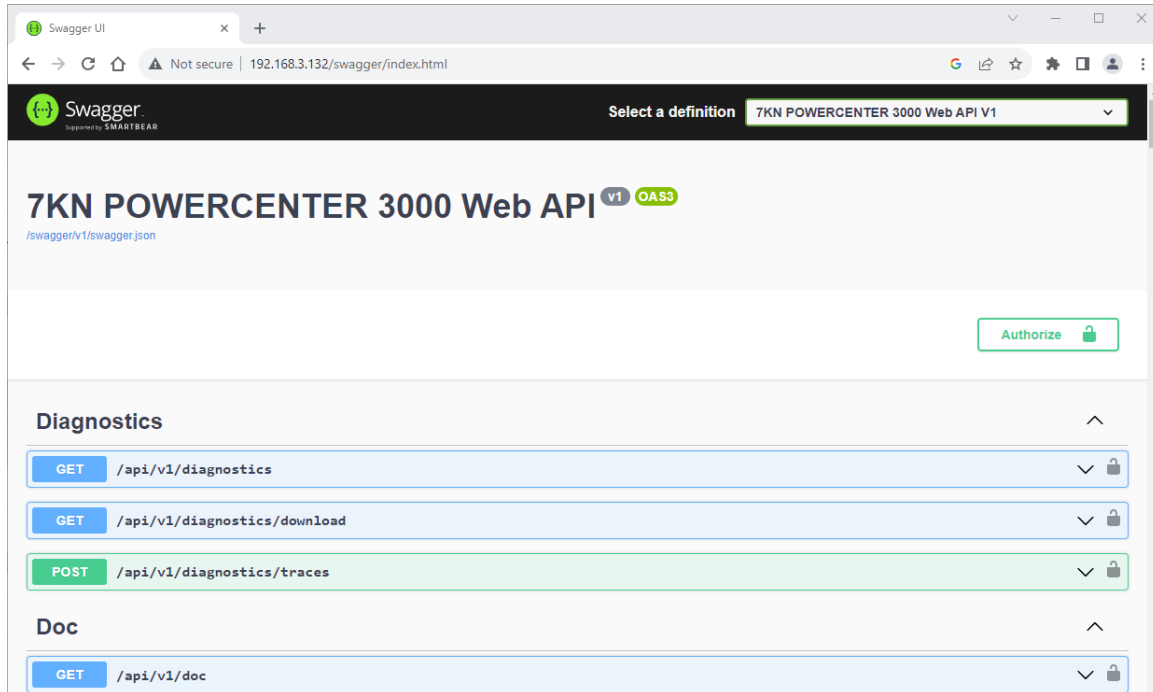
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1. Documentation

Powercenter 3000 contains the tool Swagger which is used for API documentation. This can be accessed via web browser of Powercenter 3000:

<http://POC3000-IP/swagger/>



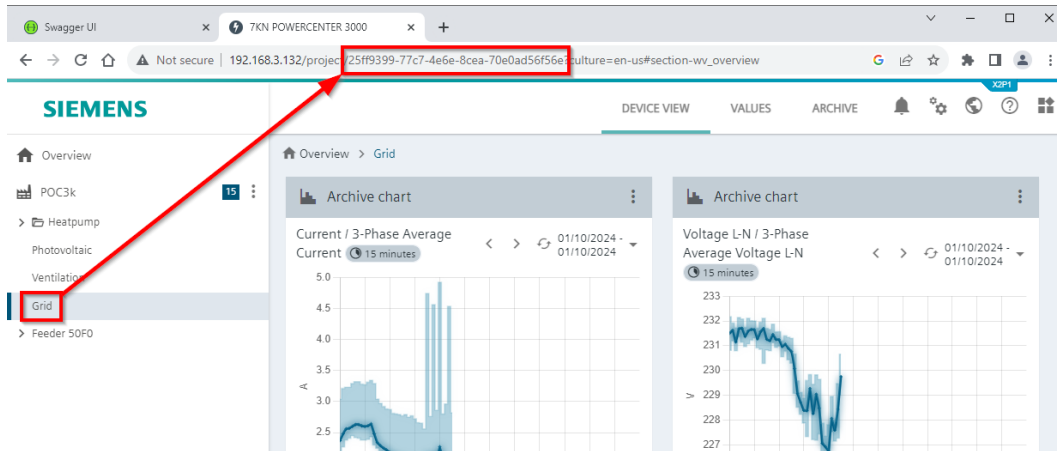
Here all possible API commands are listed.

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2. Example commands

2.1. View values from device

Open regular Powercenter 3000 web interface, select a device of your interest and copy **Device-ID**:

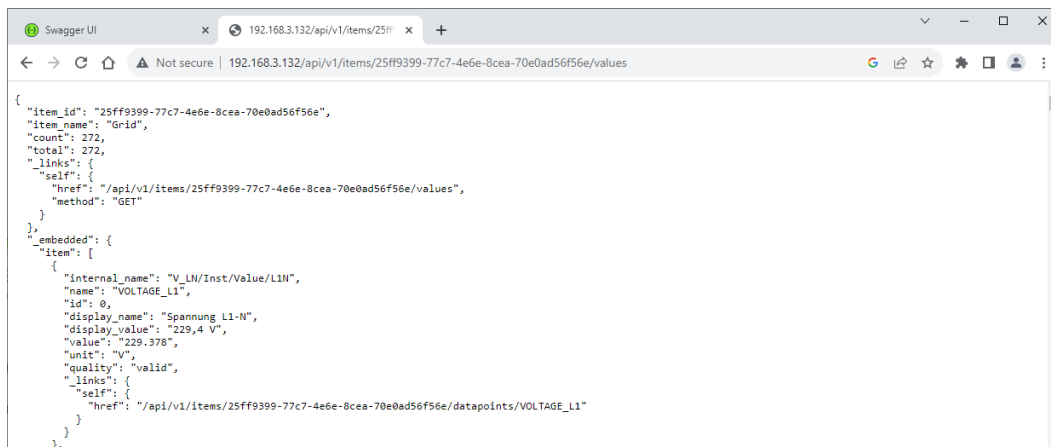


Create a URL with following structure:

`http://POC3000-IP/api/v1/items/Device-ID/values`

<http://192.168.3.132/api/v1/items/25ff9399-77c7-4e6e-8cea-70e0ad56f56e/values>

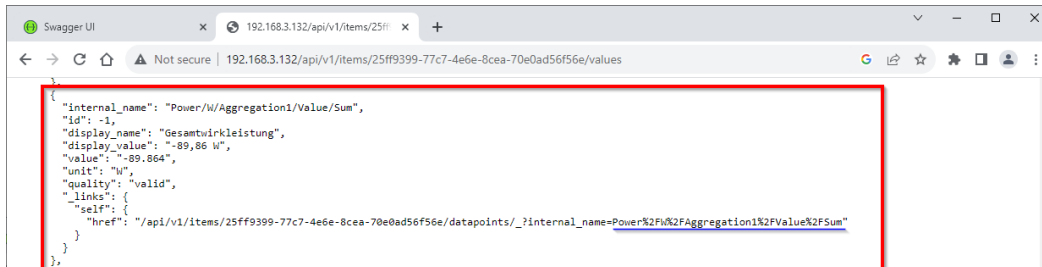
Result is a text output in JSON format where all values including the their meta data are listed:



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2.2. Get internal name of specified value

Check the output from point 2.1 and search for an entry of required value. Take care to use an entry with “Aggregation1” (10s values) or “Aggregation2” (15min values). For these values also historic data is available. This will be important for next step.



```
{
  "internal_name": "Power/W/Aggregation1/Value/Sum",
  "id": -1,
  "display_name": "Gesamtwirkleistung",
  "display_value": "-89,86 W",
  "value": "-89.864",
  "unit": "W",
  "quality": "valid",
  "_links": {
    "self": {
      "href": "/api/v1/items/25ff9399-77c7-4e6e-8cea-70e0ad56f56e/datapoints/_?internal_name=Power%2FW%2FAggregation1%2FValue%2FSum"
    }
  }
}
```

Copy the **internal_name** from “href”: Power%2FW%2FAggregation1%2FValue%2FSum

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2.3. Get historic data of specific value:

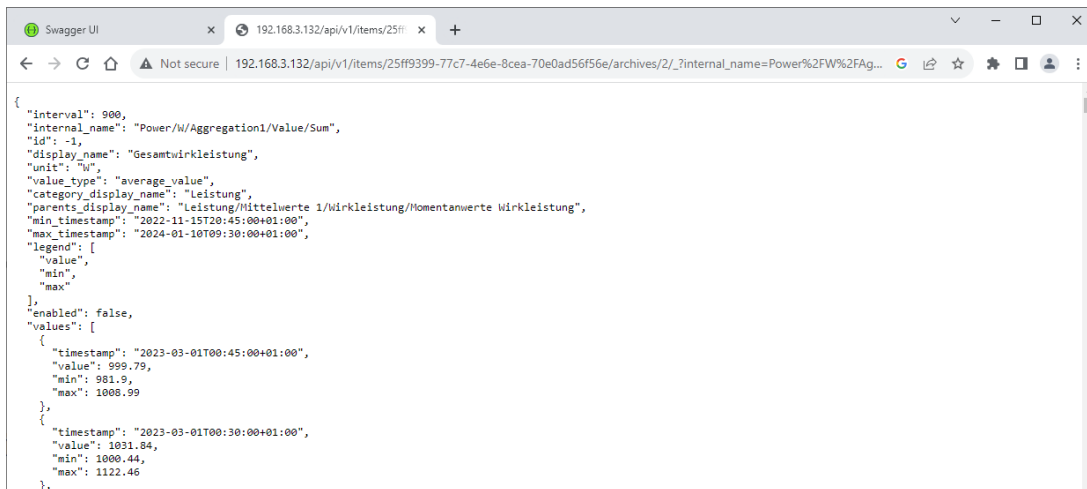
Create a new URL with following format and adjust the red colored parameters:

Archive-ID: 1 for 10s values. 2 for 15min values.
Time: Start and end time
Format: json or csv
Culture: Depends to used decimal format

http://POC3000-IP/api/v1/items/Device-ID/archives/Archive-ID/_?internal_name=internal_name&start_time=2023-02-01T00:00:00.000Z&end_time=2023-02-28T23:59:59.999Z&format=Format&culture=de-DE

Archived data displayed in JSON format:

http://192.168.3.132/api/v1/items/25ff9399-77c7-4e6e-8cea-70e0ad56f56e/archives/2/?internal_name=Power%2FW%2FAggregation1%2FValue%2FSum&start_time=2023-02-01T00:00:00.000Z&end_time=2023-02-28T23:59:59.999Z&format=json&culture=de-DE



Archived data download as CSV file:

http://192.168.3.132/api/v1/items/25ff9399-77c7-4e6e-8cea-70e0ad56f56e/archives/2/?internal_name=Power%2FW%2FAggregation1%2FValue%2FSum&start_time=2023-02-01T00:00:00.000Z&end_time=2023-02-28T23:59:59.999Z&format=csv&culture=de-DE

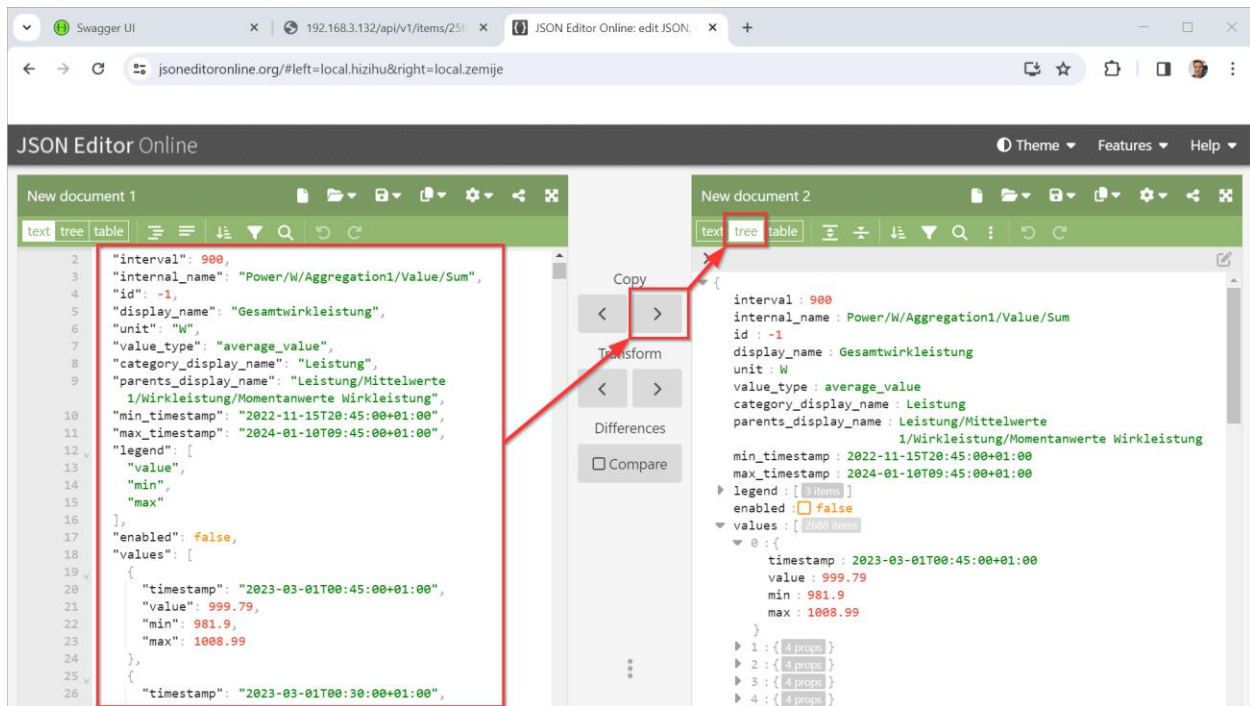
If data is specified as CSV the result will be a file for download in your browser.

3. Example applications:

3.1. Analyze active energy logs with web browser

JSON formatted text data from point 2.3 can be used in JSON viewers. As simple improvement several web-based tools are available (e.g.: <https://jsoneditoronline.org>).

Copy & paste the JSON formatted data from point 2.3 to this editor:

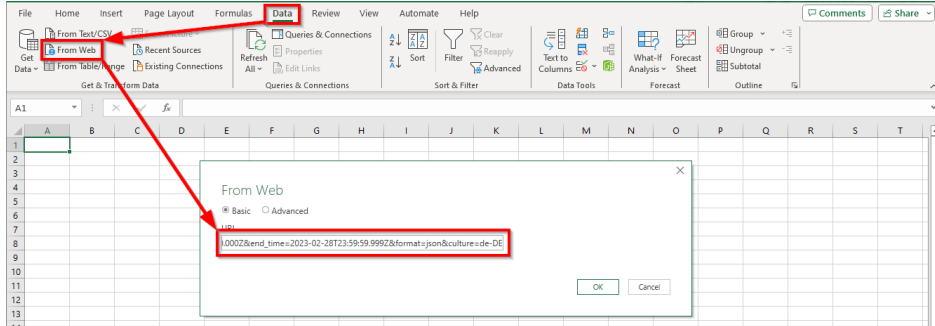


Data now can be converted in several views to get a better feeling for it or do some analyzes.

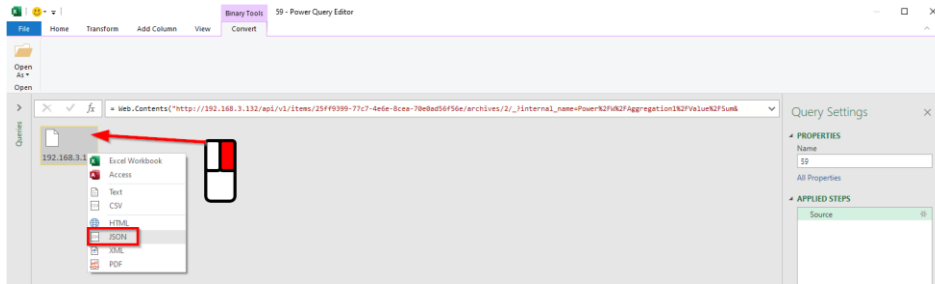
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3.2. Analyze active energy logs with Excel

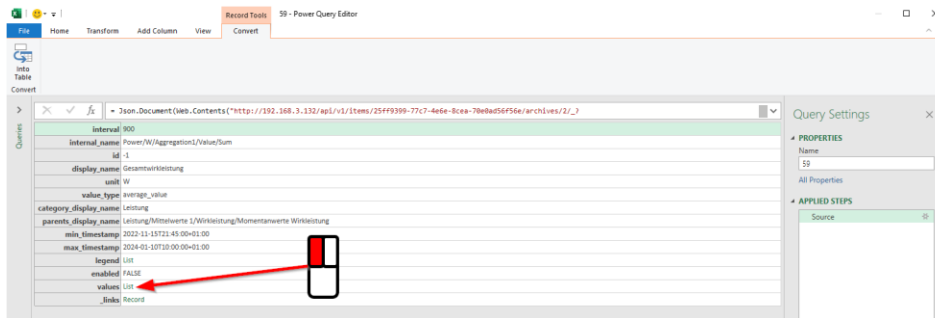
Step 1: The command to get JSON formatted data from point 2.3 can be directly linked in Excel by creating a query to it:



Step 2: Excel, Power Query Editor is opening. Select JSON:

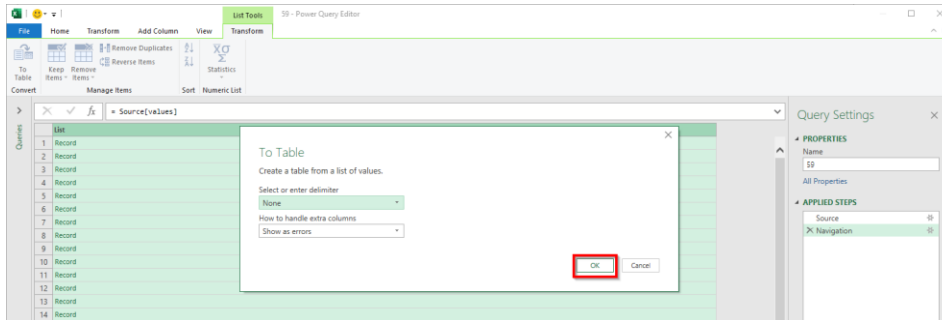
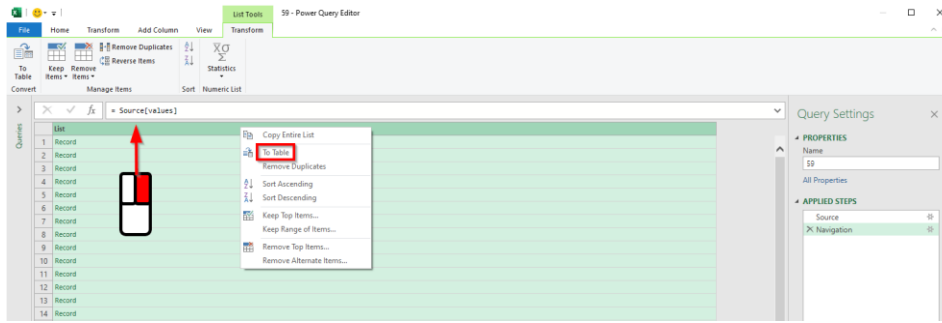


Step 3: Open values "List":

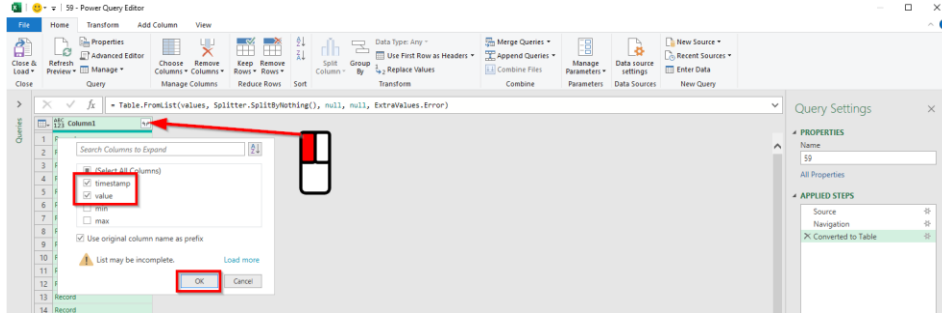


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Step 4: Convert “List” to table:

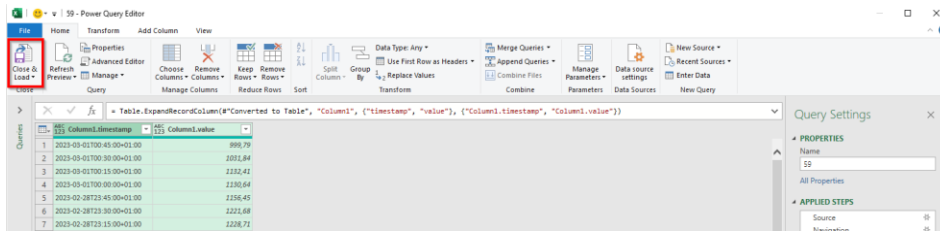


Select required columns:

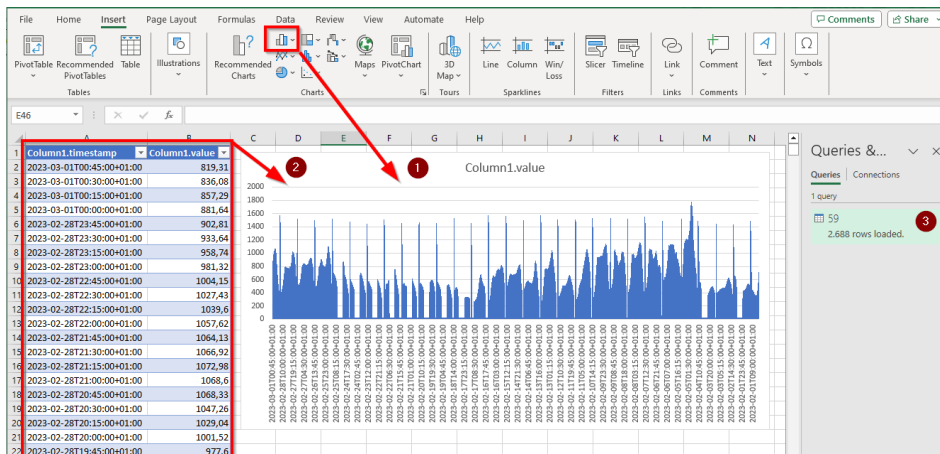


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Step 5: Load table to worksheet:



Step 6: Add an Excel diagram:



- 1) Add a diagram to the worksheet.
- 2) Select table content as data for the diagram.
- 3) Diagram data can be refreshed by refreshing the connected queries.

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4. Remarks

Accessing the API is not possible via an interface with activated login (OAuth-Protocol).

This document refers to an Powercenter 3000 with firmware V1.7.1.

5. Additional information

Latest firmware update files for Powercenter 3000:

<https://support.industry.siemens.com/cs/ww/en/view/109762951/>