

Using the API with Microsoft Power BI

Microsoft Power BI is a business analytics platform that provides interactive data visualizations for business intelligence (BI). You can use Microsoft Power BI to build customized reports or combine the data it provides with data from other tools to build a unified dashboard.

You can use the License Statistics API as input to Power BI; for example, to create a custom report. The steps to use the License Statistics API with Power BI include:

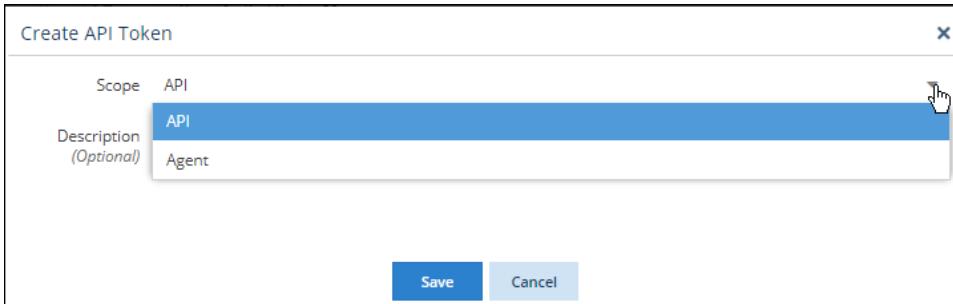
1. Create a token with API scope in License Statistics.
2. Add a Web data source to Power BI.
3. Prepare the License Statistics API data for use with Power BI.
4. Use the prepared License Statistics data to create a Power BI report.

These steps are detailed below.

Create a token with API scope

In order to [make API requests](#), you must use a token, as described in detail in [Making an API request](#).

1. Go to **API** under your logged in username, shown in the upper right corner of the application window.
2. Click **Add** to create a new API token.
3. From the dialog that opens, choose API as the scope type for the token.



4. Optionally, add a description to identify the token.
5. Click **Save** to create the token.

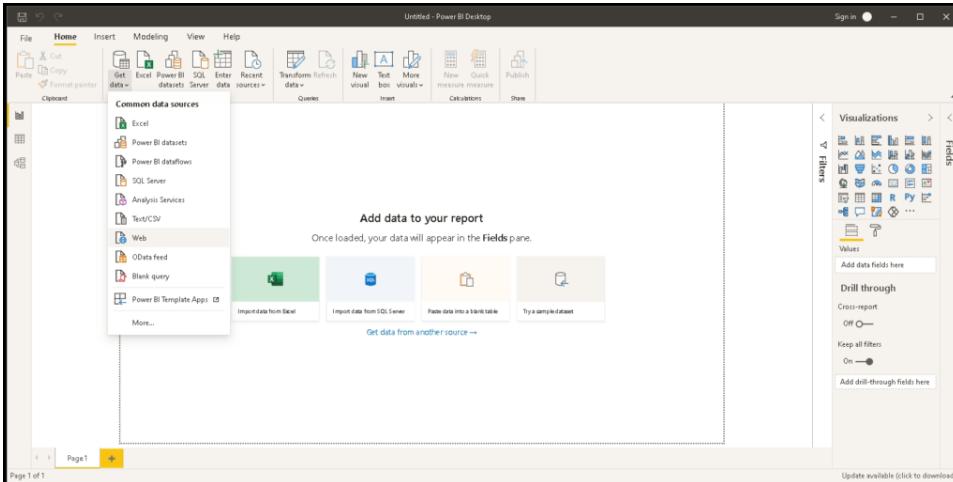
After you save your new API token, you'll see it in the API Tokens grid.

API Tokens						
	Token	Scope	Description	Creation Date	Last Used	Action
1	2e0c62c0520c410aaa5e6568a8825e6b	API	API token for Power BI example	2020-12-11 10:07	Never	

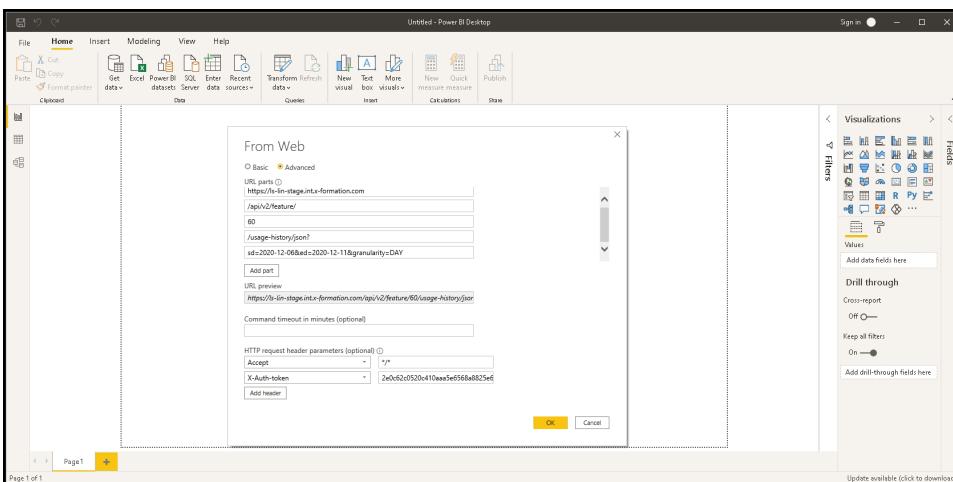
Add a Web Data Source to Power BI

In the Power BI Desktop:

1. Create a new report.
2. From the "Get data" menu, select **Web** as the data source.



3. Complete the form that displays.



- Toggle the form to **Advanced**.
- Add the [API endpoints](#) (URL parts) and click **Add part** to see the URL preview. The example above uses the endpoint "/api/v2/feature/*ID*/usage-history/json," where the *ID* variable (set to 60 in our example) can be retrieved by using the "/api/v2/feature/list" endpoint or from the Feature ID column in any License Statistics grid, as shown in the illustration below. (The Feature ID column is hidden by default, so you may need to toggle its visibility on.)
- Set the query parameters. For our example, we set a start date of December 6, 2022, and an end date of December 11, 2022, using the following parameters (see [API endpoints](#) for a complete list of API endpoint parameters):
 - sd=2022-12-06
 - ed=2022-12-11
 - granularity=DAY

Example Value | Schema

```

  {
    sd* string($date)
    Start date.

    ed* string($date)
    End date (inclusive).

    granularity* Granularity string
    Enum:
      > Array [ 6 ]
      Day
      Week
      Month
      Quarter
      Year
      All

    offset integer($int64)
    minimum: -1000000000000000000
    exclusiveMinimum: false
    default: 0
    How many rows to skip from beginning.

    limit integer($int64)
    minimum: 1
    exclusiveMinimum: false
    example: 100
    Maximum number of rows to return.

    order string
    nullable: false
    example: tps:ASC
    String representation of column ordering in format "fieldName:orderDirection" where orderDirection is either ASC or DESC. Use "," as a separator to order by multiple columns, e.g. "field1:ASC,field2:DESC"

    filter > [...]
  }

```

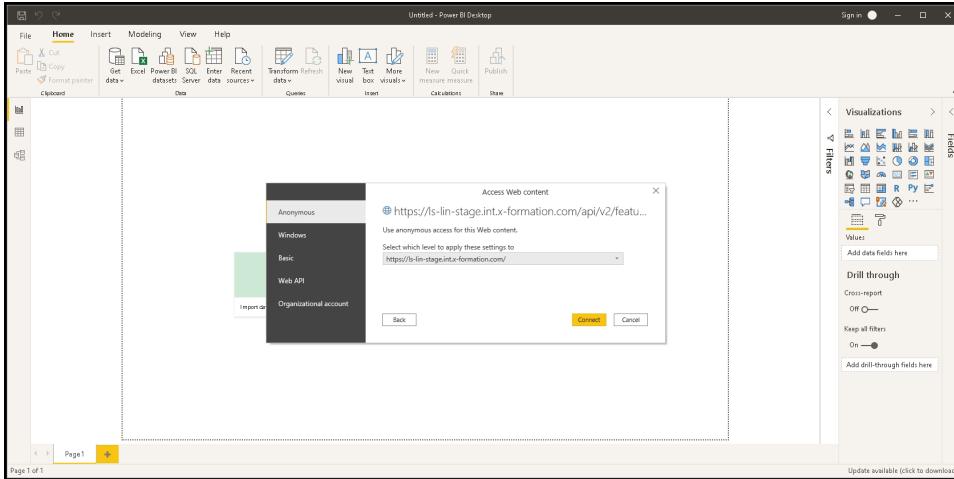
d. At the bottom of the form, add the appropriate HTTP request headers; for our example:

i. Accept: */*

ii. X-Auth-token: {API token value}

e. Click **OK** to accept the completed form.

4. When prompted, use the Anonymous access option. Authorization has been handled by the token we added to the header in the previous step.



5. Click **Connect** to access the defined Web source and get the requested data, which appears as shown below.

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help Record Tools

Queries [1] < jsonWeb2020-12-09.xlsx

success	TRUE
msg	null
data	list
totalCount	5

Query Settings

- PROPERTIES
 - Name: jsonId+2020-12-09&ext=2020-12-11&grs
- APPLIED STEPS
 - Source
 - Navigation
 - Converted to Table
 - Expanded Column1
 - Changed Type
 - Renamed Columns

PREVIEW DOWNLOADED AT 10:51 AM

Prepare the data

The data that Power BI receives from the License Statistics API must be formatted before you can read it.

- Click **List** to navigate to the data key details.

The screenshot shows the Power Query Editor interface with a single query named "json?id=2020-12-06&ed=2020-12-11&gr". The query contains one record with the following fields:

- success: TRUE
- msg: null
- data: List
- totalCount: 5

The "APPLIED STEPS" pane on the right shows the following steps:

- Source
- Navigation
- Converted to Table
- Expanded Column1
- Changed Type
- Renamed Columns

- Convert the list of records to a table using the "To Table" option.

The screenshot shows the Power Query Editor interface with the same JSON response. A context menu is open over the "data" column, and the "To Table" option is highlighted.

The "APPLIED STEPS" pane on the right shows the following steps:

- Navigation
- Converted to Table
- Expanded Column1
- Changed Type
- Renamed Columns

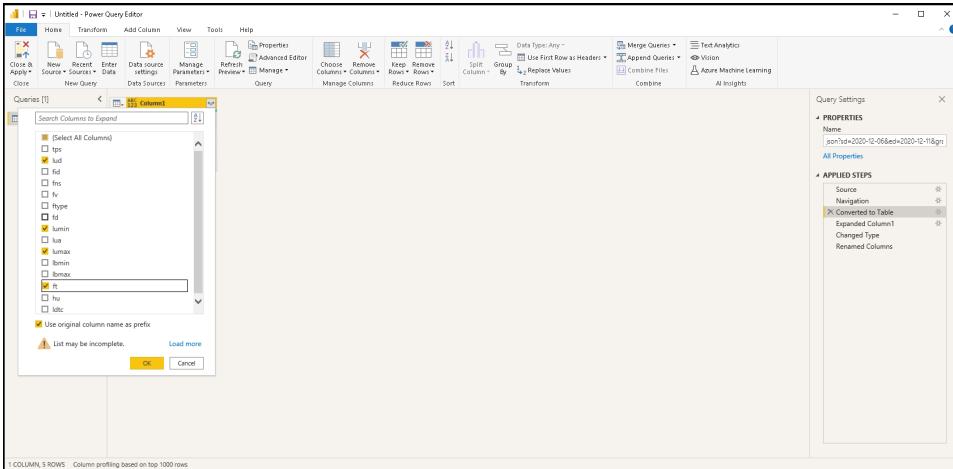
- The results appear as shown below.

The screenshot shows the Power Query Editor interface with the transformed data. The "data" column has been converted into a table with five rows, each labeled "Record".

The "APPLIED STEPS" pane on the right shows the following steps:

- Source
- Navigation
- Converted to Table
- Expanded Column1
- Changed Type
- Renamed Columns

- The resulting Table of records can be expanded to include multiple columns. Select the fields you want to include in your report from the response. (**Note:** You can also set a list of returned columns using the *fieldsVisibility* request parameter.)



For our example, we selected the following fields:

- a. lud (date)
- b. lumin (min used)
- c. lumax (max used)
- d. ft (total)

5. Click **OK** after you've selected the desired fields. The table will be expanded to a multi-column view.

[blocked URL](#)

Note: See [API endpoints](#) for a full list of parameters along with descriptions.

[blocked URL](#)

6. For proper processing, define the type of data for each column. In our example, the *lud* property is a *Date* type, while the rest of the properties are *Whole Numbers*.

Column	Type
Column1.Junior	Decimal Number
Column1.Senior	Whole Number
Column1.Max	Whole Number
Column1.Total	Whole Number

7. Rename the columns so they will be understandable in the reports.

The screenshot shows the Power Query Editor interface. A table named 'json?sd=2020-12-06&ed=2020-12-11&gr=' is displayed with four columns: Date, Min Used, Max Used, and Total. A context menu is open over the 'Total' column, with 'Rename...' selected. The 'APPLIED STEPS' pane shows a step named 'Renamed Columns'.

Create a report in Power BI using the License Statistics data

Once you have prepared the data source, you can use the data to create your custom report. For example, you could create a usage history report for a particular feature that includes maximum usage, minimum usage, and the total number of licenses used daily during a selected period of time.

For our example, we created a line chart with a date on the X Axis and, on the Y Axis, the values from the three data series: Max Used, Min Used, and Total.

