



Monthly Stock Prices API

Files and attachments

The files for this session:

<u>Source</u>	<u>Information</u>
Stock Prices API – Worked Example	Power BI file containing a worked example
Power Platform Finance – stock prices	Background image for your report

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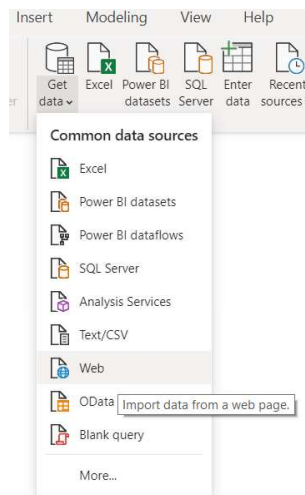
1) Getting an API key

For the purpose of the example, you will need an API Key from <https://www.alphavantage.co/>

1.1) Go to <https://www.alphavantage.co/documentation/> & click on “Claim your free API Key”, make a note of the code that you are given

2) Importing and transforming the data

2.1) On the “Home” tab, select “Get Data” → “Web”



2.2) In the URL enter

https://www.alphavantage.co/query?function=TIME_SERIES_MONTHLY&symbol=IBM&apikey= and at the end add your API Key from step 2 then click “Ok”

From Web

Basic Advanced

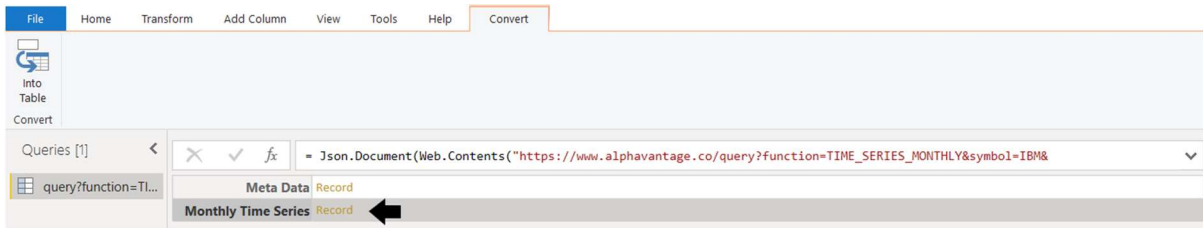
URL

OK

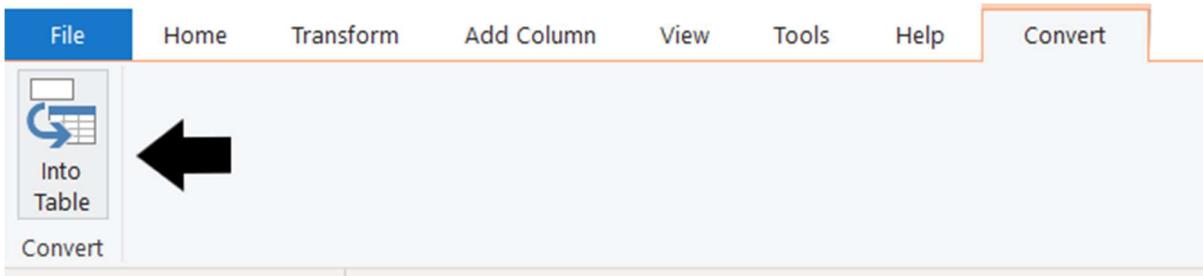
Cancel



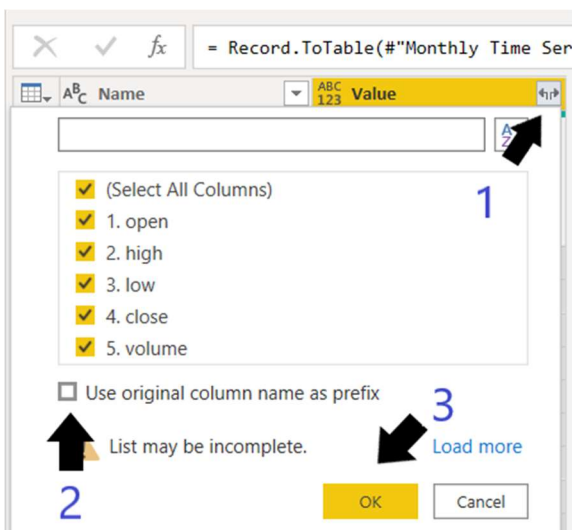
2.3) In the query editor that opens up, left click on the “Record” to the right of “Monthly Time Series”



2.4) Convert into a table using convert “Into Table”



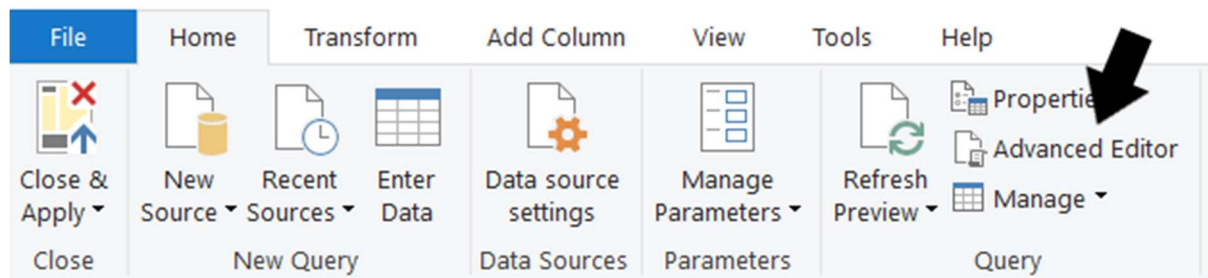
2.5) Expand the table (1), untick “Use original column name as prefix” (2) and click “Ok”





2.6) Create a custom function

2.6.1) Part 1: Open the Advanced Editor by clicking on “Advanced Editor”



2.6.2) Part 2: Replace the address

“https://www.alphavantage.co/query?function=TIME_SERIES_MONTHLY&symbol=IBM&apikey=demo” with the below where [API KEY] = your API key from Step 2

```
"https://www.alphavantage.co/",
  [
    RelativePath="query",
    Query=
      [
        function = "TIME_SERIES_MONTHLY",
        symbol=symbol,
        apikey="[API KEY]"
      ]
  ]
```

NOTE: RelativePath is being used to pass through the three parameters that this API needs, the function “Time_Series_Monthly”, the symbol (a parameter we are going to define, e.g. IBM) & your API Key for the request

2.6.3) Part 3: Turn into a function, by putting the following code at the beginning and end

beginning

```
let
  Source = (symbol) =>
```

end

```
in Source
```



2.6.4) The full code should look like the below, if so click “Done”

```

let
    Source = (symbol) =>
        let
            Source = Json.Document(Web.Contents(
                "https://www.alphavantage.co/",
                [
                    RelativePath="query",
                    Query=
                        [
                            function = "TIME_SERIES_MONTHLY",
                            symbol=symbol,
                            apikey="demo"
                        ]
                ]
            )),
            #"Monthly Time Series" = Source[Monthly Time Series],
            #"Converted to Table" = Record.ToTable(#"Monthly Time Series"),
            #"Expanded Value" = Table.ExpandRecordColumn(#"Converted to Table", "Value", {"1. open", "2. high", "3. low", "4. close", "5. volume"})
        in
            #"Expanded Value"
    in Source
    
```

✓ No syntax errors have been detected.

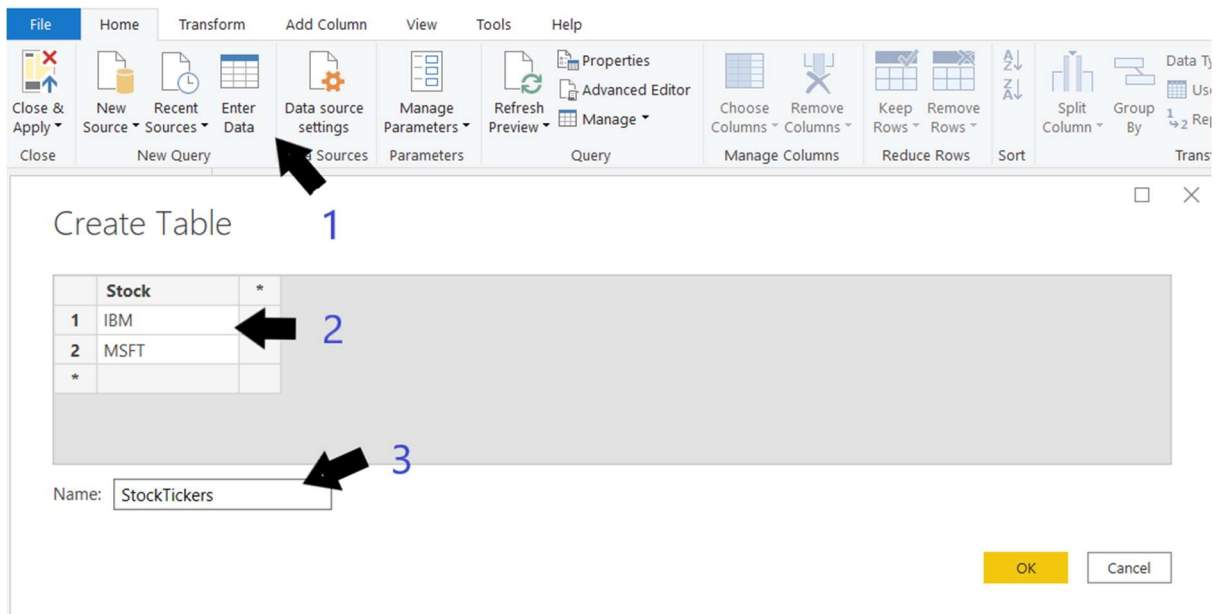
Done Cancel

2.6.5) Rename as “Function1”

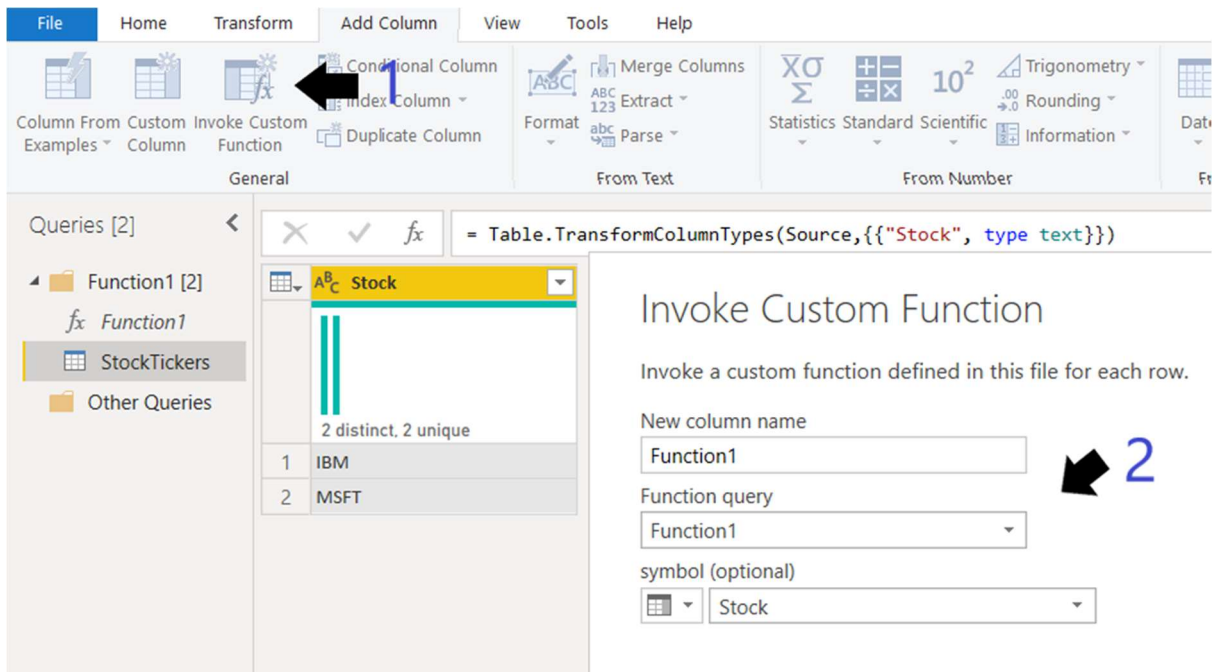
The screenshot shows the Power BI interface. On the left, a list of queries includes 'Function1 [1]'. The main area displays the 'Enter Parameter' dialog for the selected query, showing the parameter 'symbol (optional)' with an 'Invoke' button. On the right, the 'Query Settings' pane is open, showing the 'PROPERTIES' section where the 'Name' is set to 'Function1'. A black arrow points to the 'Name' field in the 'Query Settings' pane.



2.7) Create a table of the stocks to be examined by selecting “Enter Data” (1), typing in the title “stock” and name of the stocks (2) & changing the table name to “StockTickers” (3)

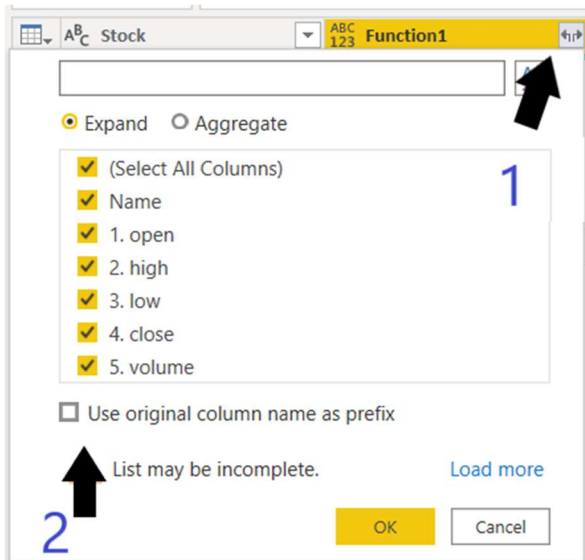


2.8) Use the function created for each stock by clicking on “Invoke Custom Function” (1) then having the Function query as “Function1” and symbol as “Stock” (2) then click “OK”

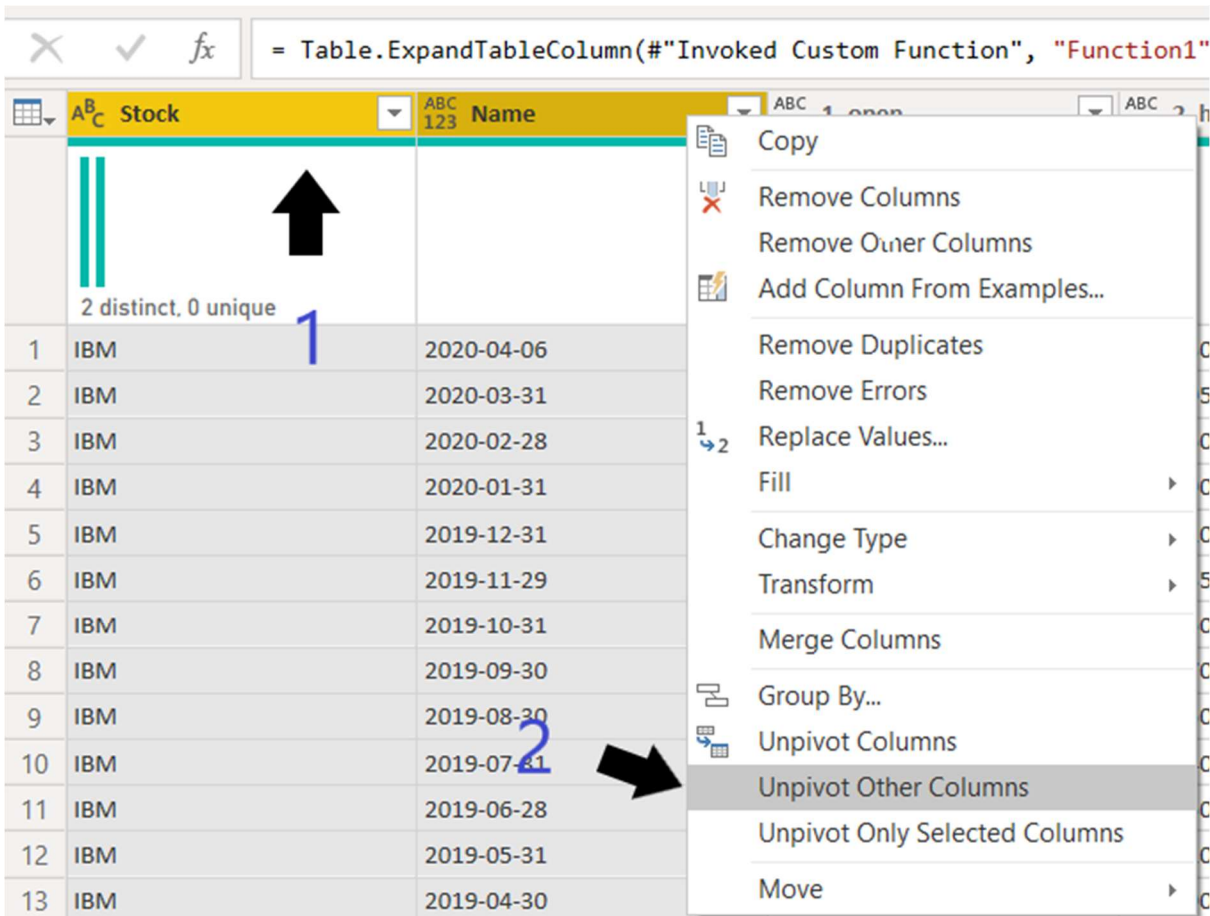




2.9) Expand out the newly created column (1) untick “Use original column name as prefix” (2) and click ok

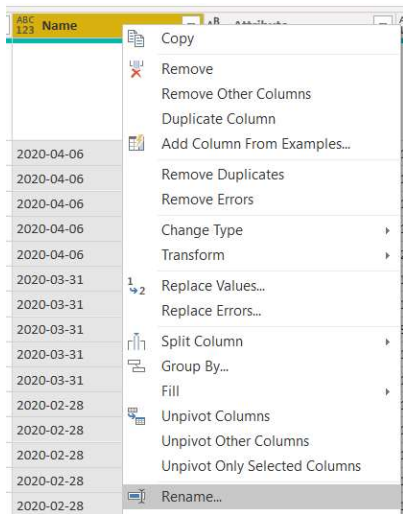


2.10) Select the “Stock” column by clicking on the header, hold down Cntrl and select the “Name” column (1) then right click and select “Unpivot Other Columns” (2)

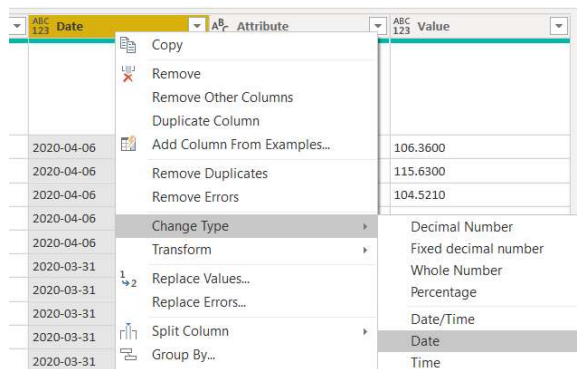




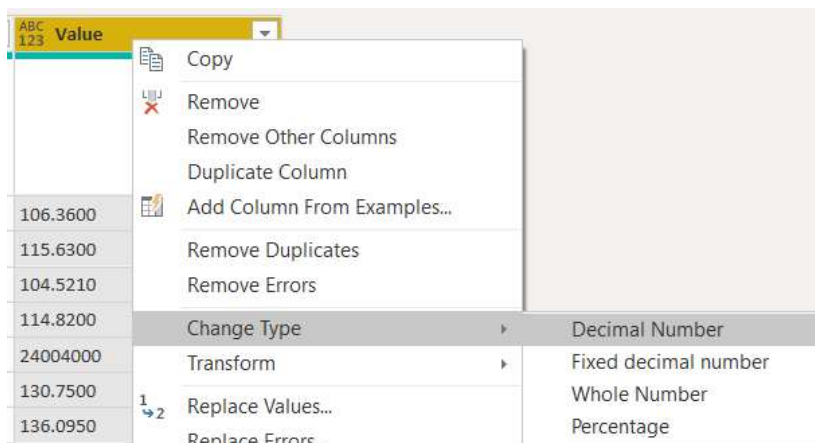
2.11) Right click on “Name” and select “Rename” then type “Date”



2.12) Right click on “Date” and select “Change Type” then “Date”



2.13) Right click on “Value” then “Change Type” then “Decimal Number”



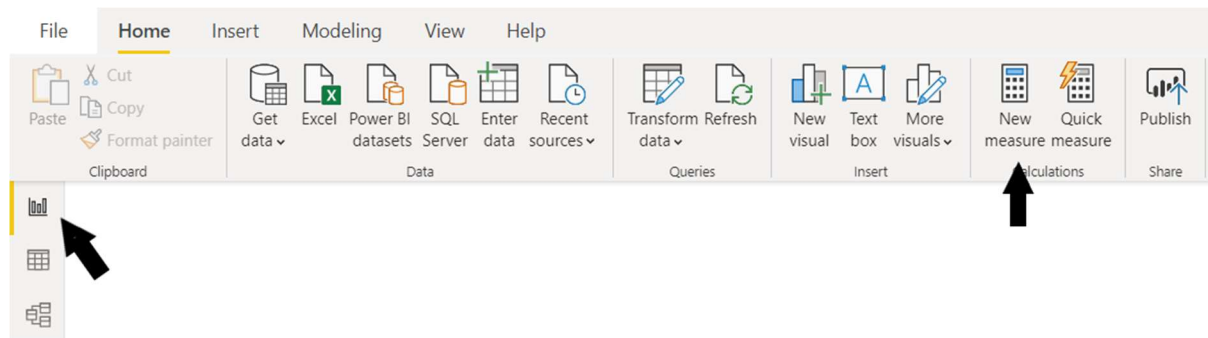
2.14) Select the “Home” tab then “Close and Apply”





3) Creating the DAX Measures

3.1) On the left hand side, go the "Report" view then select "New Measure"



3.2) Then create the following DAX measure overriding the work "measure =" with the below:

```

Stock Name and Type =
VAR hasonevaluecheck =
    HASONEVALUE ( StockTickers[Attribute] ) = FALSE ()
    || HASONEVALUE ( StockTickers[Stock] ) = FALSE ()

VAR currencyorvolume =
    IF (
        hasonevaluecheck,
        " ",
        IF (
            FIRSTNONBLANK ( StockTickers[Attribute], 0 ) = "5. volume",
            " traded",
            " USD"
        )
    )

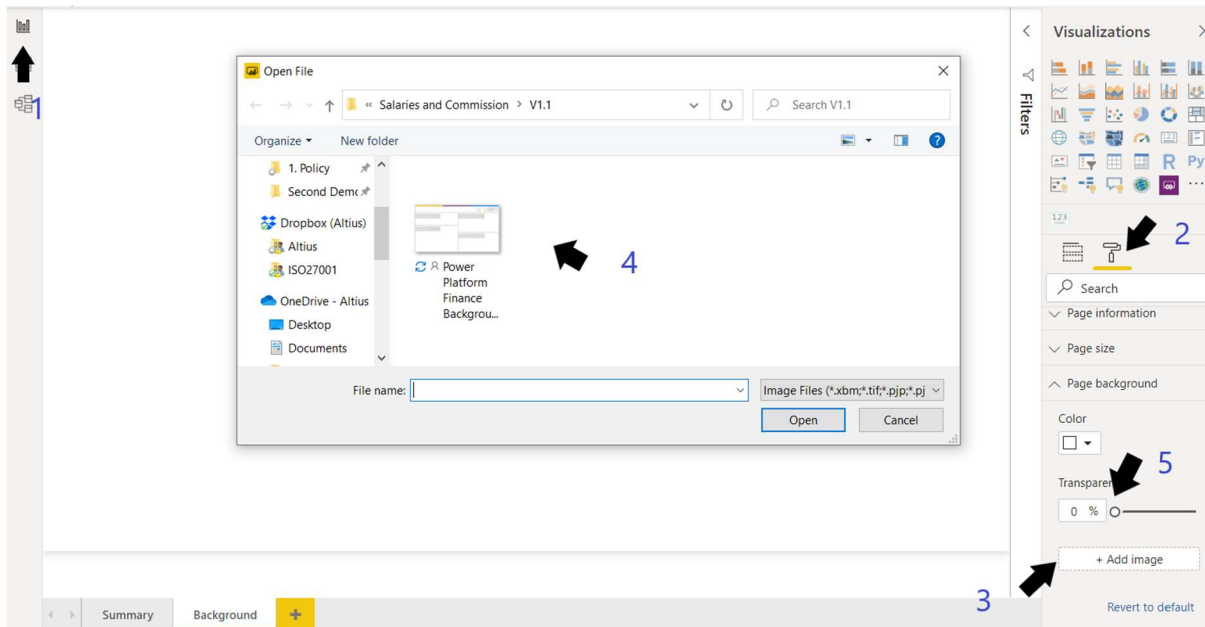
VAR Note =
    IF (
        hasonevaluecheck,
        "Please select one stock and one attribute",
        FIRSTNONBLANK ( StockTickers[Stock], 0 ) & " "
            & MID(FIRSTNONBLANK ( StockTickers[Attribute], 0 ),3,10)
    )

RETURN
    Note & currencyorvolume
  
```

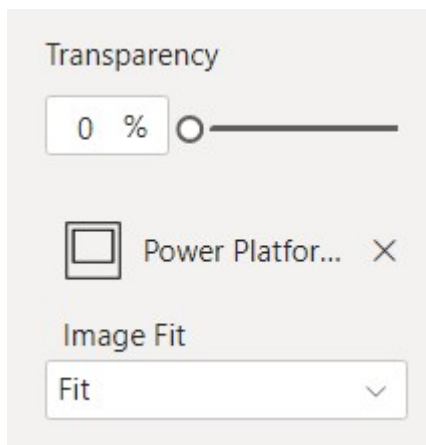


4) Add background

4.4) Select the “Report” page (1) → “Format” for the page (2) → “Add Image” (3) → “Select Image” - in files and attachments (4) → change “Transparency” to 0%



4.5) Change “Image Fit” to “Fit”



5) Design your report

Design your report by:

- Adding Line Chart:
 - Selecting Line Graph (1)
 - Dragging “Date” (2) to Axis (3)
 - Dragging “Value” to the “Values”
 - Click three times on (4) to show down to the day
 - Resize and reposition using the corners (5)
- Adding Card:
 - Select Card (6)
 - Add in “Stock Name and Type” (7) measure to the “Fields”
 - Resize and reposition using the corners (8)
- Select one stock and attribute:
 - Drag “Attribute” (9) to the “Report Filters” (11)
 - Drag “Stock” (10) to the “Report Filters” (11)
 - Select “Require single selection” for both
 - Tick “MSFT” and “1. Open”



References and further reading

DAX formatter is used throughout this document - <https://www.daxformatter.com/>

Chris Webb relative path - <https://blog.crossjoin.co.uk/2016/08/16/using-the-relativepath-and-query-options-with-web-contents-in-power-query-and-power-bi-m-code/>