Power Query

Week 1 Documentation

Prepared by: Traci Williams

2025

Contents

info@excelace.co.uk 07813 347 139
www.excelace.co.uk

1) Power Query Introduction

Power Query is a (relatively) new function in MS Excel, and is now, a standard part of the software.

The purpose of Power Query (PQ) is to Consolidate, Merge & Transform data from different sources, based on specific rules that are applied at Set Up. These rules will be consistently applied as frequently as the raw data is amended or added to, by simply clicking 'Refresh'.

Unlike formula's, there is no need to extend the PQ to accommodate a larger range, meaning there is less risk of forgetting this step, or experiencing the time delay of waiting for formula's to recalculate.

PQ can be applied to many different data sources, not just Excel files. They can even be applied to 'Folders', and consolidate data from all files saved within a folder (given a specific file type).

PQ is very specific in terms of file names, sheet names and column headers, and will need the 'Rules' to be amended accordingly if any of these change. It is also essential to have ALL source documents closed before opening a file containing Power Query.

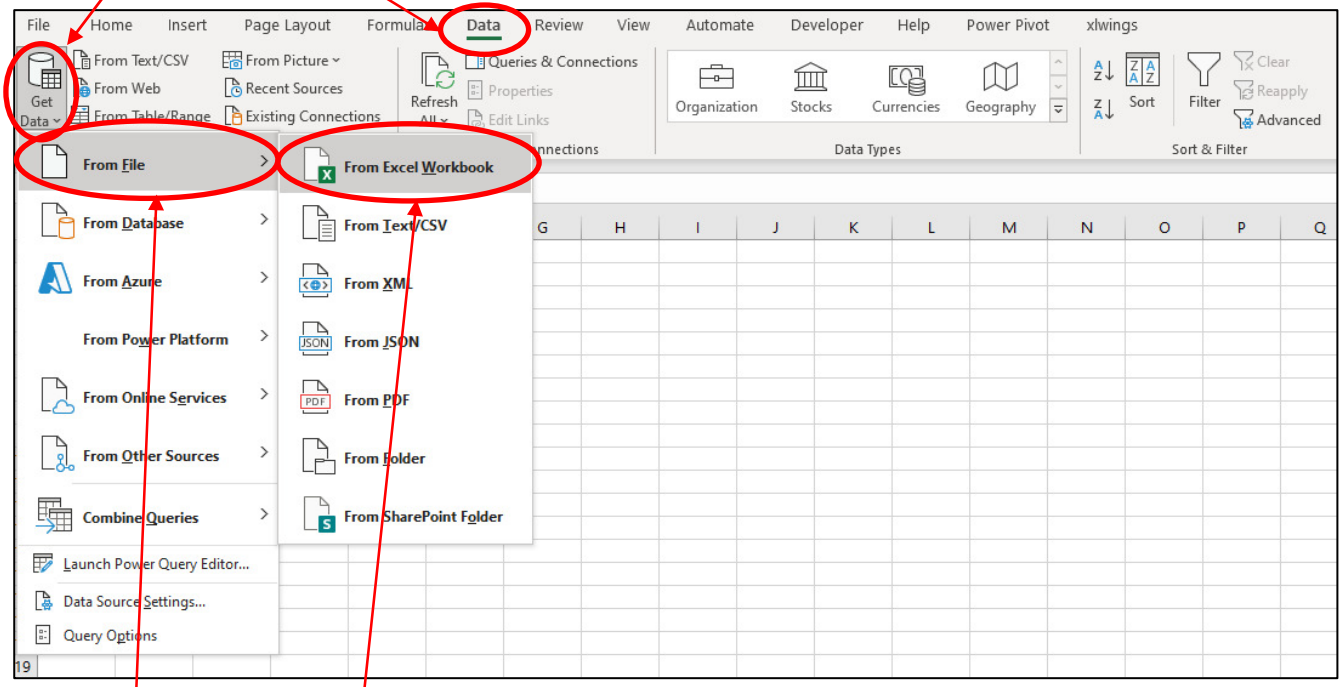
The result of a PQ cannot be manually edited, the User must always revert back to the raw data files to make any changes.

2) Create Queries

Creating queries of course depends on the data source we are using, this Documentation will focus only on Excel Files & Folders.

Create Query linked to an Excel File

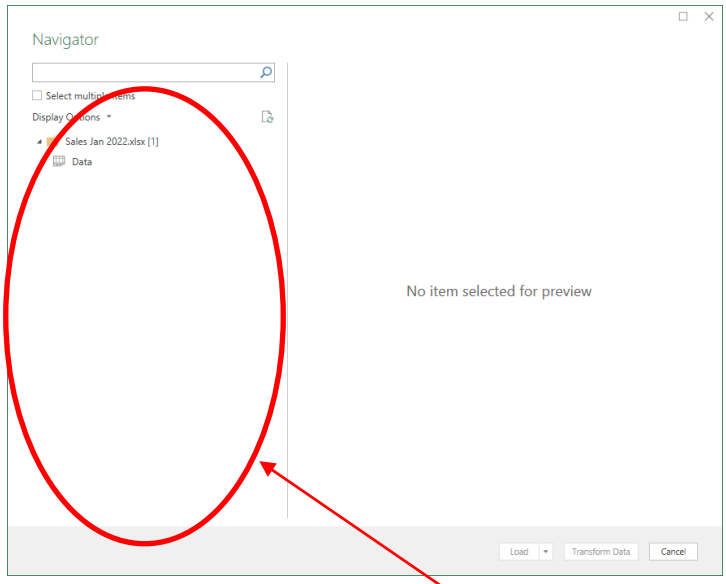
Select 'Get Data' from the 'Data' ribbon:



Select 'From File', then 'From Excel Workbook' and the browse window will appear.

Navigate to the relevant Excel file, then press 'Import'.

The 'Navigator' window will appear as follows:



Here we can select from the options in this panel, the Sheet Name or Named Range we want our Query to be based on.

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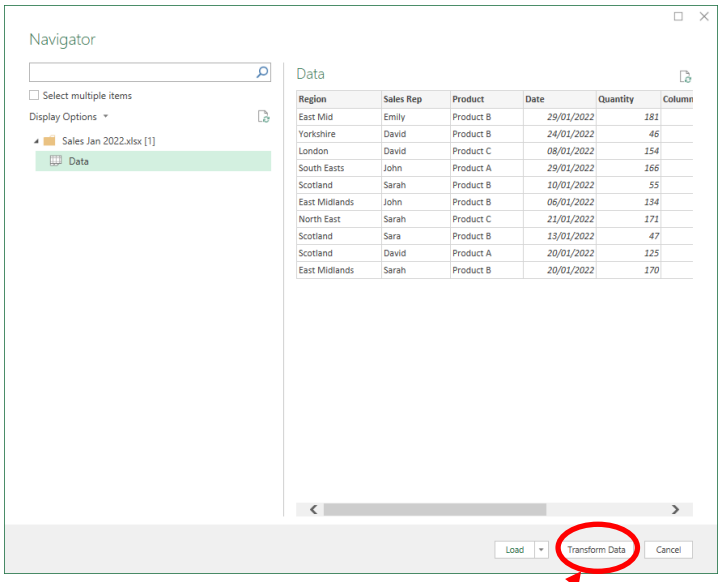
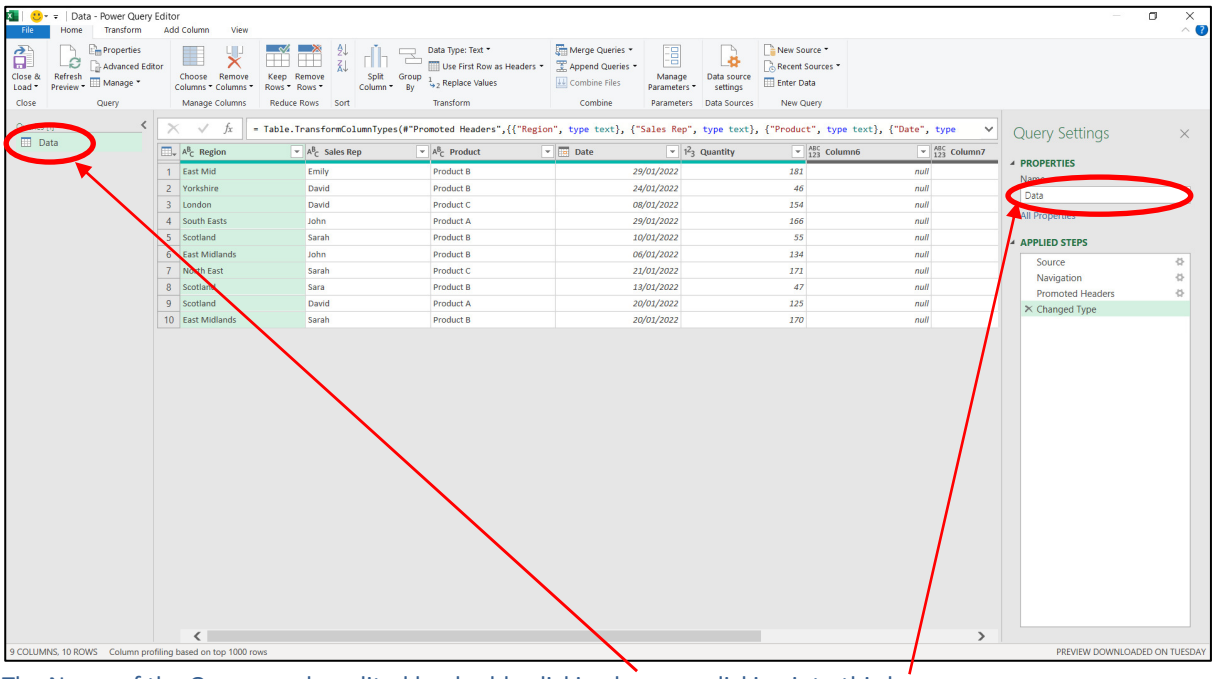
As we make the selection, a preview of the relevant data can be see in this panel:



If you are sure this is the correct data, click 'Transform Data' to begin making any adjustments.

The Query will then be visible within the 'Power Query Editor' for us to review, or start Transforming:



The Name of the Query can be edited by double clicking here, or clicking into this box

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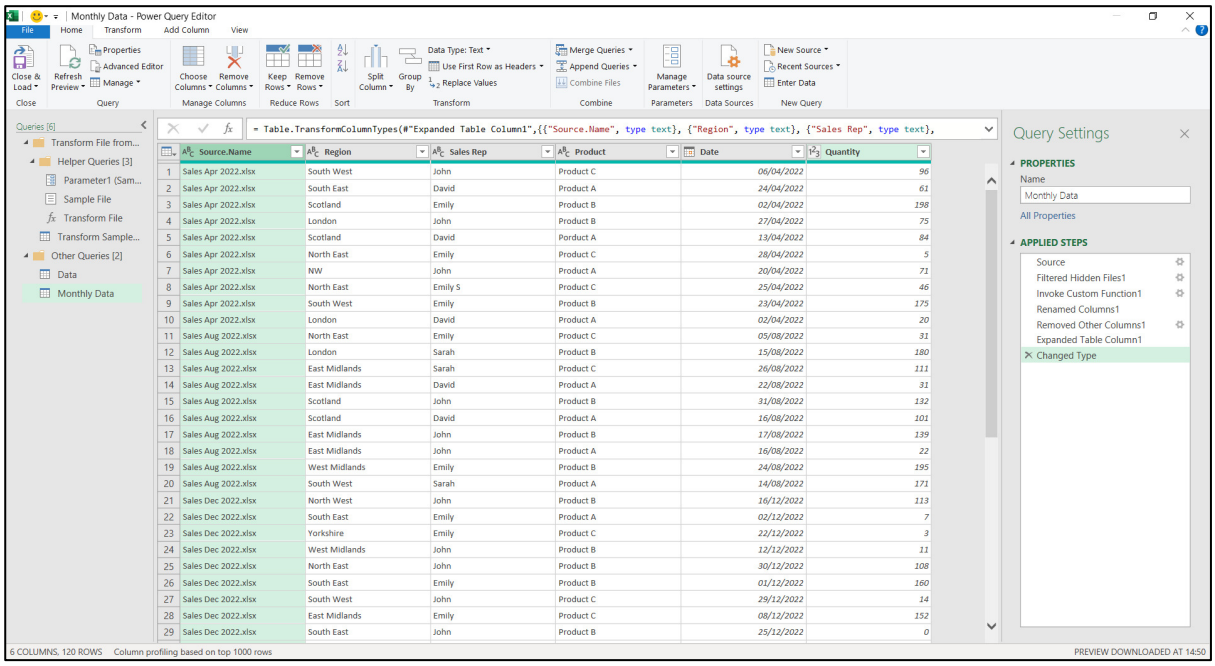
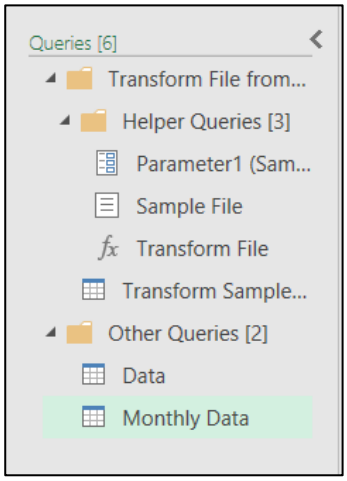
3) Power Query Editor

The Power Query Editor appears like this:



In the panel on the left hand side is a list of ALL the Queries.



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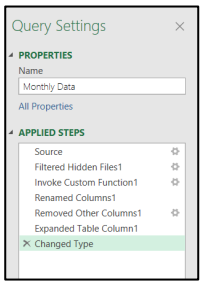
In the panel on the right hand side is a list of ALL the Steps that have been applied to the selected Query. We can edit the Name of the Query here too.

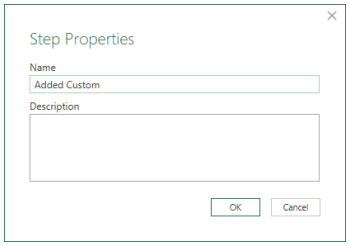


Some steps will have a 'cog' to the right of them, and if you click on the 'cog' it will take you to the options that have been selected, and you can edit them if required.

To the right of each step (as they are selected), is the 'Delete' icon, so we can delete Steps if required.

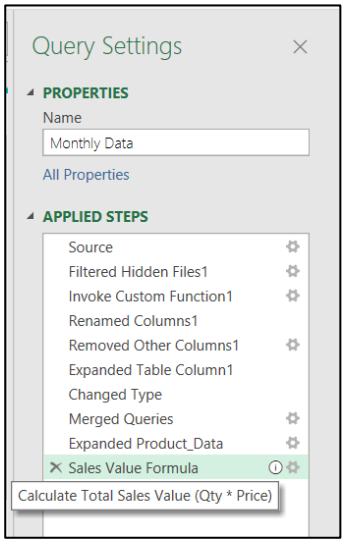
As new actions are completed, a new step will appear in this list.
Steps can be renamed, moved up or down the list, or removed.

Right click on a Step Name, and select 'Rename' to make them more recognisable. Of course, there is not much space for the Name, so it can be difficult to make the Names meaningful. If you want to add more detail, you can right click the Step Name, and select 'Properties':

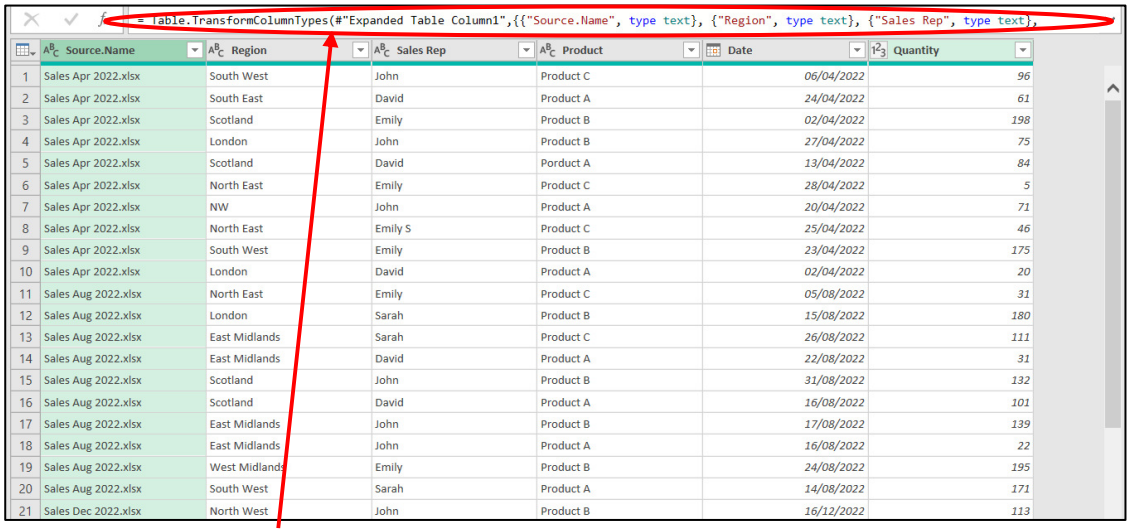


Here we can amend the Name, and also add a more detailed description.

This will appear next to the Step name as an 'i' and also pop up with the description as you hover the mouse over the 'i' and makes it easier to identify Steps if required:



In the middle of the screen, is the data as it appears at the selected Step:

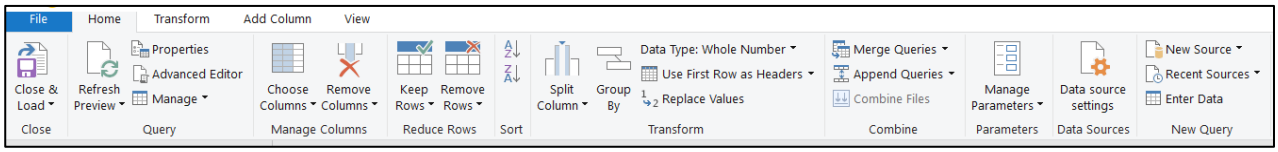


	Source.Name	Region	Sales Rep	Product	Date	Quantity
1	Sales Apr 2022.xlsx	South West	John	Product C	06/04/2022	96
2	Sales Apr 2022.xlsx	South East	David	Product A	24/04/2022	61
3	Sales Apr 2022.xlsx	Scotland	Emily	Product B	02/04/2022	198
4	Sales Apr 2022.xlsx	London	John	Product B	27/04/2022	75
5	Sales Apr 2022.xlsx	Scotland	David	Porduct A	13/04/2022	84
6	Sales Apr 2022.xlsx	North East	Emily	Product C	28/04/2022	5
7	Sales Apr 2022.xlsx	NW	John	Product A	20/04/2022	71
8	Sales Apr 2022.xlsx	North East	Emily S	Product C	25/04/2022	46
9	Sales Apr 2022.xlsx	South West	Emily	Product B	23/04/2022	175
10	Sales Apr 2022.xlsx	London	David	Product A	02/04/2022	20
11	Sales Aug 2022.xlsx	North East	Emily	Product C	05/08/2022	31
12	Sales Aug 2022.xlsx	London	Sarah	Product B	15/08/2022	180
13	Sales Aug 2022.xlsx	East Midlands	Sarah	Product C	26/08/2022	111
14	Sales Aug 2022.xlsx	East Midlands	David	Product A	22/08/2022	31
15	Sales Aug 2022.xlsx	Scotland	John	Product B	31/08/2022	132
16	Sales Aug 2022.xlsx	Scotland	David	Product A	16/08/2022	101
17	Sales Aug 2022.xlsx	East Midlands	John	Product B	17/08/2022	139
18	Sales Aug 2022.xlsx	East Midlands	John	Product A	16/08/2022	22
19	Sales Aug 2022.xlsx	West Midlands	Emily	Product B	24/08/2022	195
20	Sales Aug 2022.xlsx	South West	Sarah	Product A	14/08/2022	171
21	Sales Dec 2022.xlsx	North West	John	Product B	16/12/2022	113

At the very top is the 'M' code that relates to the selected step ***(don't let this scare you)***.

It is possible to select an earlier step and see what the data looked like prior to a specific step. This is extremely useful for trouble shooting.

At the very top of the screen are the Ribbons, which contain ALL of the Transformation & Merging options, and most are very straight forward:



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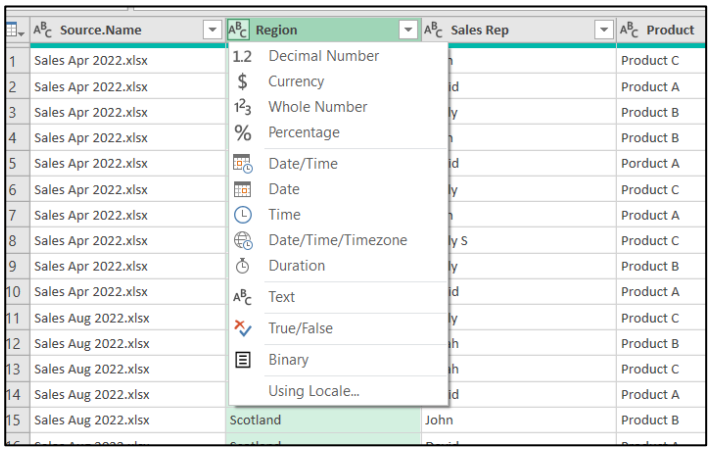
4) Data Types

At the top left of every column header, you will see the 'Data Type', this is usually automatically detected by the Power Query, but we can also amend these manually, by clicking on that icon too:



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5) Basic Transformation Options

The ribbons at the top of the Power Query Editor can be used to transform the data, perform calculations and merge data, in numerous different ways.

There are 5 Ribbons at the top of the PQ Editor:

File - This contains options for Load & Close and PQ Settings

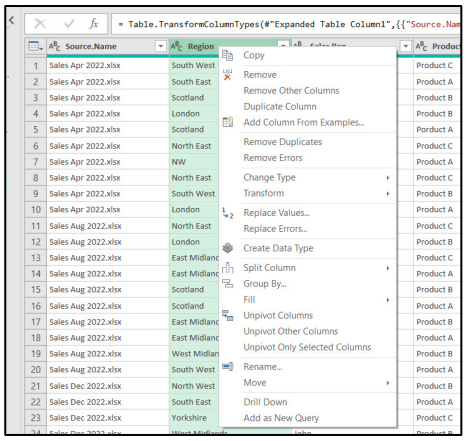
Home - These options will amend the data in the existing columns

Transform - These are more advanced methods of transforming the data

Add Column - These options will create additional columns of data, and can also include formula

Most of the options from the Ribbons are as obvious as they sound, and the best way to understand them is to try them and see the impact on data *(don't forget you can just delete a Step if it the result is not what you need).*

A lot of the Basic options can also be found by selecting a column, right clicking mouse and finding the function within that menu (the functionality will be identical to selecting the option from the ribbons):



Some of the Super useful functions are:

- Delete Steps
- Move Steps
- Amending Properties
- Promote Headers
- Sort
- Filter
- Remove Columns / Rows
- Replace Values
- Trim

6) Load Options

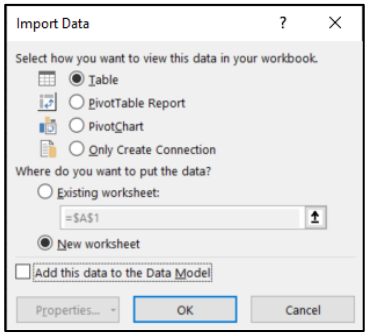
The result of a Power Query (PQ) can be displayed in 4 different ways:

- Table
- Pivot Table
- Pivot Chart
- Connection Only (used to link other Queries)

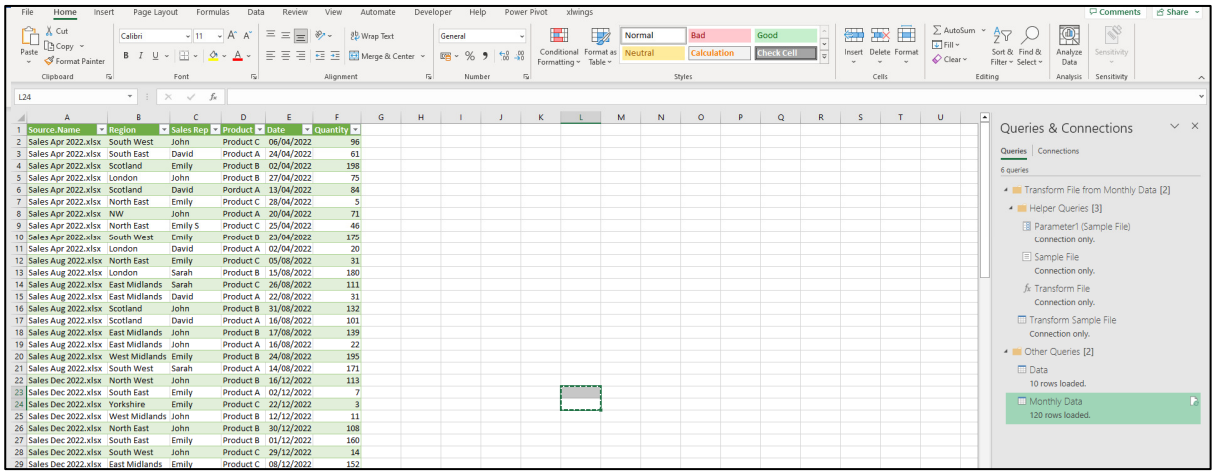
In the Home ribbon, the 'Close & Load' button has a top and bottom half.

The Top half will Close the PQ Editor and Load the data to either the previously selected option, or the default option (usually a Table).

The Bottom half will Close the PQ Editor and give the user the 4 Load options to select from (this is usually only available the first time the data is Loaded):



Make your selection and click OK. The PQ Editor will close and the data will become visible via the selected option:



On the right hand side of the screen is the 'Queries & Connections' panel *(if this is not visible, go to Data ribbon, click on Queries & Connections to make it appear)*, right click on any Query and select 'Load To' to change the Load options.

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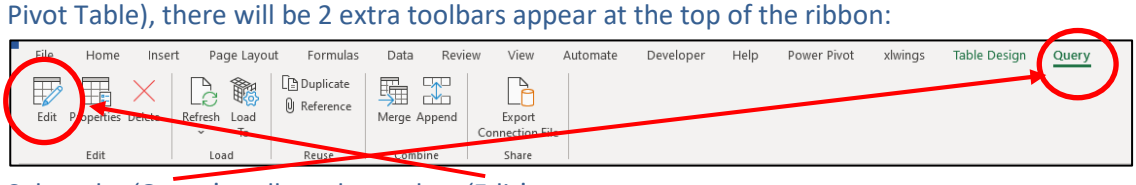
7) Accessing Power Query Editor

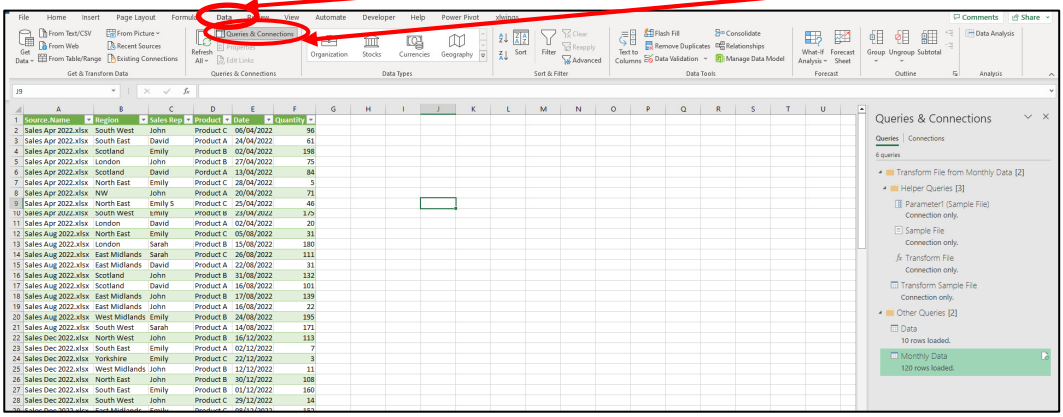
There are 3 options to access Power Query Editor:

1) On a sheet containing the result of a Query, if the cursor is positioned within the Table (or Pivot Table), there will be 2 extra toolbars appear at the top of the ribbon:



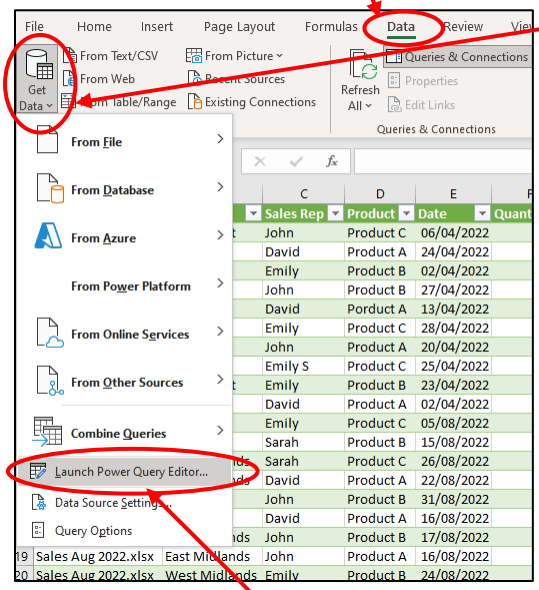
Select the 'Query' toolbar, then select 'Edit'.
This will open the Power Query Editor.

2) From any sheet, select the 'Data' ribbon, and left click on 'Queries & Connections:



The Queries & Connection panel will appear to the right of the screen and list ALL of the Queries in this file.
To view a Query, double click left mouse on any Query in this panel and the Power Query Editor will open.

3) From any sheet, select the 'Data' ribbon, and left click on 'Get Data:



Then select 'Launch Power Query Editor' and this will open the Power Query Editor.

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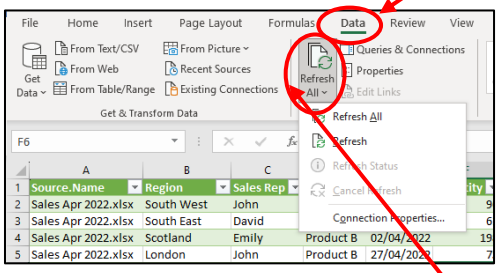
8) Refresh Power Query

There are a couple of ways to Refresh the Power Query:

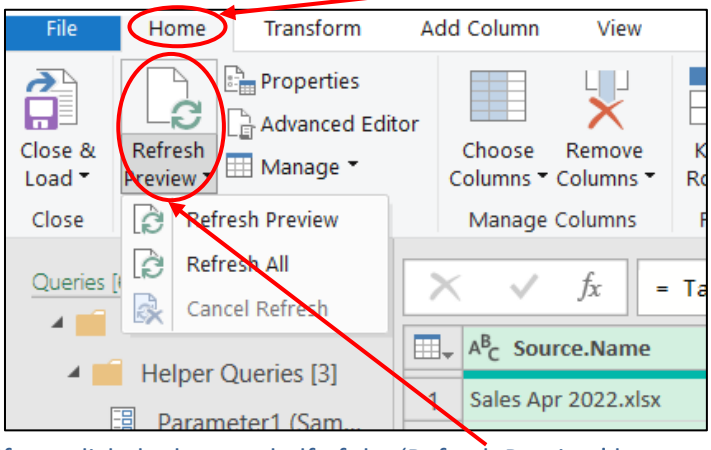
1) From any sheet, select the 'Data' ribbon:



If you click the bottom half of the 'Refresh All' button, you will see more options and you can select either 'Refresh All' (this will Refresh ALL Queries & Pivot Tables in the file), or 'Refresh' (this will Refresh just the selected Query or Pivot Table).
The top half of this button will 'Refresh All'.

While the data is being refreshed, the cursor will change to a spinning blue circle, and return to an arrow once complete.
It is useful to have the 'Queries & Connections' panel open, while the data refreshes, as you're able to see the progress and which Query is being refreshed.

2) From Power Query Editor, select 'Home' ribbon:



If you click the bottom half of the 'Refresh Preview' button, you will see more options and you can select either 'Refresh All' (this will Refresh ALL Queries in the file), or 'Refresh Preview' (this will Refresh just the selected Query).
The top half of this button will 'Refresh All'.

While the data is being refreshed, you will see some moving dots underneath the ribbon, they will disappear once the Refresh is complete.

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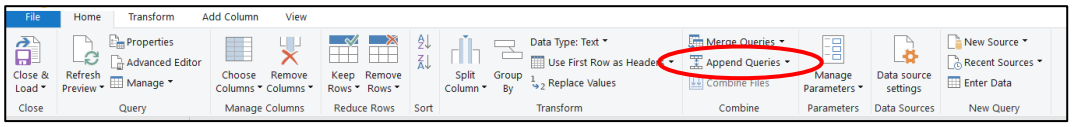
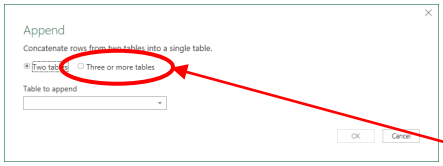
9) Append

This can be found in the 'Home' ribbon:

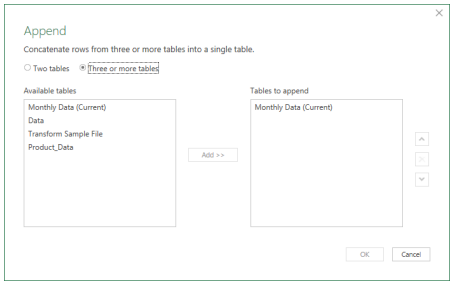


This function should be used to pull two (or more) queries together, into one Query. Usually with the same (or similar) columns of data, although different columns can be included too.

You simply choose the two Queries you want to Append:



If you need more than two Queries, click the 'Three or more tables' option, and you can select all of the relevant Queries here:



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