We are in a bit of a DAYS this month as we go through

the A to Z of Excel Functions. We even re-hash all of the number formats (including dates) in a re-hash of our look at custom number formatting.

There's some exciting – if not early – news this month too: for our readers Down Under, we are pleased to announce the return of the Excel Summit South (*i.e.* The Artist Formerly Known as "Unlock Excel") for its fourth outing in Australia. There are other venues to be announced soon – but more on that anon.

With our regular series on Power Pivot, Power Query, Power BI updates, VBA, Keyboard Shortcuts and the A to Z of Excel Functions all present and correct, it's another monthly newsletter with something for everyone – except paracetamol.

Until next month.

Liam Bastick, Managing Director, SumProduct

MVP Summit

Another year, and fortunately for us, another MVP Global Summit! SumProduct's very own **Liam Bastick** and **Tim Heng** were both in attendance to hear the latest on Excel 2019, Excel 365, Excel for Mac, Excel Online and the Power BI suite of tools.

Where's Tim? Someone missed the photo call… At least Liam's hidden at the back (best place!).

Excel Summit South is coming!!

EXCEL SUMMIT SOUTH 2019

After two years as Unlock Excel, we're reverting to the original name tentatively for this year's summit. That's right – the fourth annual Excel Summit will be returning Down Under in 2019, albeit slightly later this year in light of previous attendee feedback – and at a cheaper rate too thanks to the kind donation of venues!

It's too soon to supply all the details in time for this month's newsletter but we have some key dates / locations for you in the meantime to whet your appetite:

- **Brisbane:** Monday 29 and Tuesday 30 July
- **Sydney:** Thursday 1 and Friday 2 August
- **Melbourne:** Monday 5 and Tuesday 6 August
- **Perth:** Thursday 8 and Friday 9 August.

For our New Zealand readers, we must advise it does not look like we will be returning in 2019 (sorry) but you are welcome to come to Oz for a discounted deal: drop us a line at contact@sumproduct.com for more details.

It is confirmed Microsoft will be in attendance as will an array of Excel and Data Platform MVPs. More to come very soon – keep an eye on www.sumproduct.com/news and watch this space in next month's newsletter too!

So what happened to Access..?



The new Office icons have started to roll out – and there's one question everyone who is anyone (well, that's a nerd anyway…) is asking: where's Access..? Even Yammer gets an upgrade, but dear old Access, it still retains its old icon, poor thing…
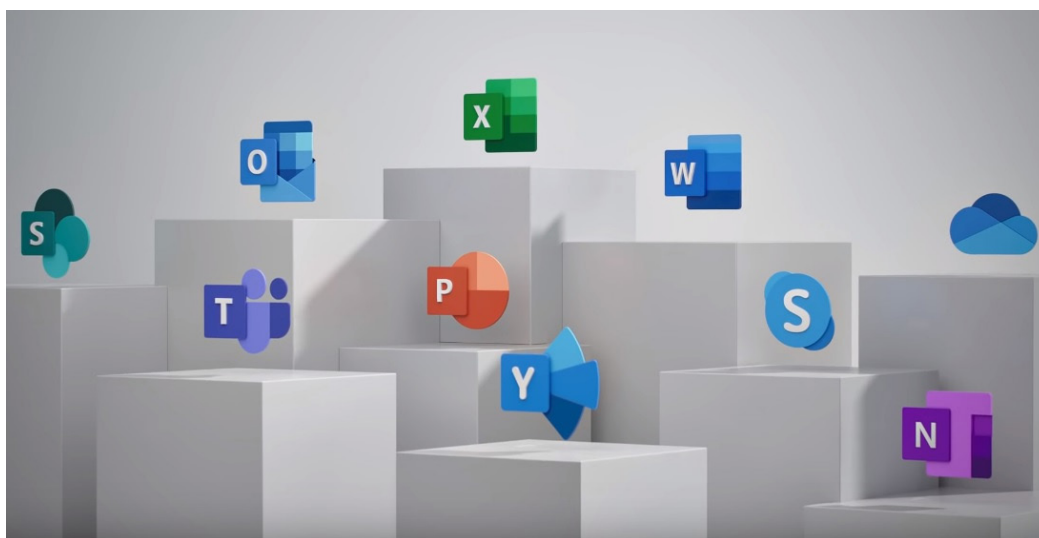
Custom Number Formatting

Alright, so yes, we covered this before (back in November 2013), but we have had a few requests again recently, so it's time to revisit this popular topic. Given that one of the primary purposes of a spreadsheet is to present numerical data, it is important how numerical data is presented. Cells may be individually formatted, using **CTRL + 1** (all versions of Excel):
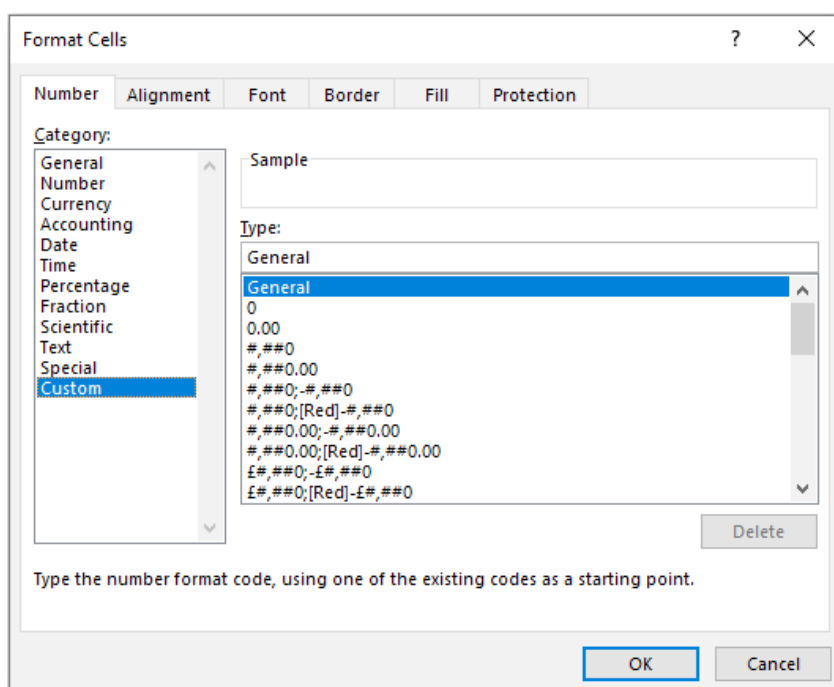
Formatting only changes the appearance, not the underlying value, of a cell. For example, if cells **A1** and **B1** had the number '1.4' typed in but were formatted to zero decimal places, then if cell **C1 = A1 + B1**, you would truly have 1 + 1 = 3 (well, 1.4 + 1.4 = 2.8 anyway).

This should not be confused with '(Set) precision as displayed' (**ALT + T + O -> Advanced -> When calculating this workbook -> Set precision as displayed**). Selecting this option and clicking 'OK' will permanently change stored values in cells to whatever format has been selected, including the number of decimal places (*e.g.* 15.75 formatted to one decimal placed would become precisely 15.8).

Excel has many built-in number formats that are fairly easy to understand, *e.g.* Currency, Date, Percentage. The default format is 'General' where Excel will endeavour to provide the most appropriate format for the contents. For example, typing '3 3/4' into a cell will result in Excel selecting a mixed format.

But what do you do if you can't find an appropriate format?

Selecting the 'Custom' category activates the 'Type' input box and allows between 200 and 250 custom number formats in a particular workbook, depending upon the language version of Excel that has been installed.

The 'Type' input box allows up to four aspects of formatting to be specified in a cell. These aspects are referred to as sections and are separated by a semi-colon (;). To ascertain what is contained in each section depends on the total number of sections used, *viz.*

No. of Sections	Section Details (assuming no conditions)
1 (min)	All numerical values
2	Non-negative Numbers; Negative Numbers
3	Positive Numbers; Negative Numbers; Zero Values
4 (max)	Positive Numbers; Negative Numbers; Zero Values; Text

To the uninitiated, coding custom number formats may appear incomprehensible. However, understanding the following tables from Microsoft® soon puts things into perspective.

Number Code	Description
General	General number format
0	Digit placeholder (if no number, a '0' will be used to 'pad')
#	Digit placeholder (does not display extra zeros)
?	Digit placeholder (leaves space for extra zeros, but does not display them)
. (decimal point / full stop)	Decimal point!
%	Percentage displayed
, (comma)	Thousands separator
/	Used to delineate numerator from denominator in Fraction category
E+ e+ E- e-	Scientific notation

Text Code	Description
$ - + / ( ) : space	These characters are displayed in the number.
"text"	For other characters, in order to ensure Excel does not misinterpret them, it is best to use enclose the character(s) in quotation marks…
\character	…or precede it with a backslash
*	Repeats the next character in the format to fill the column width. Only one asterisk per section of a format is allowed
_character	Skips the width of the next character. In particular, this syntax is often used with the closing parenthesis, _), in a positive number format (when the negative format includes brackets). This allows the values to line up at the decimal point
@	Text placeholder

Date Code	Description
m	Month as a number without leading zeros (1 to 12)
mm	Month as a number with leading zeros (01 to 12)
mmm	Month as an abbreviation (Jan – Dec)
mmmm	Unabbreviated month (January – December)
mmmmm	First letter of month (J, F, M, A, M, J, J, A, S, O, N, D)
d	Day without leading zeros (1 to 31)
dd	Day with leading zeros (01 to 31)
ddd	Week day as an abbreviation (Sun – Sat)
dddd	Unabbreviated week day (Sunday – Saturday)
y or yy	Year as a two digit number (e.g. 09, 97)
yyy or yyyy	Year as a four digit number (e.g. 2009, 1997)

Time Code	Description
h	Hours as a number without leading zero (0 to 23)
hh	Hours as a number with leading zero (00 to 23)
m	Minutes as a number without leading zero (0 to 59)
mm	Minutes as a number with leading zero (00 to 59)
s	Seconds as a number without leading zero (0 to 59)
ss	Seconds as a number with leading zero (00 to 59)
[h]	With times only, will increment hours to 24 and beyond
[m]	With times only, will increment minutes to 60 and beyond
[s]	With times only, will increment seconds to 60 and beyond
AM/PM am/pm	Time based on the 12-hour clock [24-hour clock is the default]

Miscellaneous Code	Description
[Black], [Blue], [Cyan], [Green], [Magenta], [Red], [White], [Yellow]	Displays the characters in the specified colours
[Color n]	Displays the characters in a specified colour, where n is a value from 1 to 56, and refers to the nth colour in the color palette
;	Delineates a section
[Condition Value]	Condition may be any one of the comparison operators, <, >, =, <=, >=, <> and Value may be any number.
	A number format may contain up to two conditions

For more on number formatting, illustrative examples and to download a free sample Excel workbook, please go to www.sumproduct.com/thought/number-formatting.

Visual Basics

We thought we'd run an elementary series going through the rudiments of Visual Basic for Applications (VBA) as a springboard for newer users. This month, we look at declaring variables.

To maintain good coding practice to declare variables, it is easy to ask VBA to force the coder to declare them all the time. This is done using the opening statement **Option Explicit**.

When Option Explicit appears in a file, you must explicitly declare all variables by using the Dim or ReDim statements. If you try to use an undeclared variable name, an error occurs at compile time.

As an example, let's start with the following code:

```
Option Explicit

Sub OETest()

    myTestString = "Hello World!"

    MsgBox myTestString

End Sub
```

Running this code results in the following:
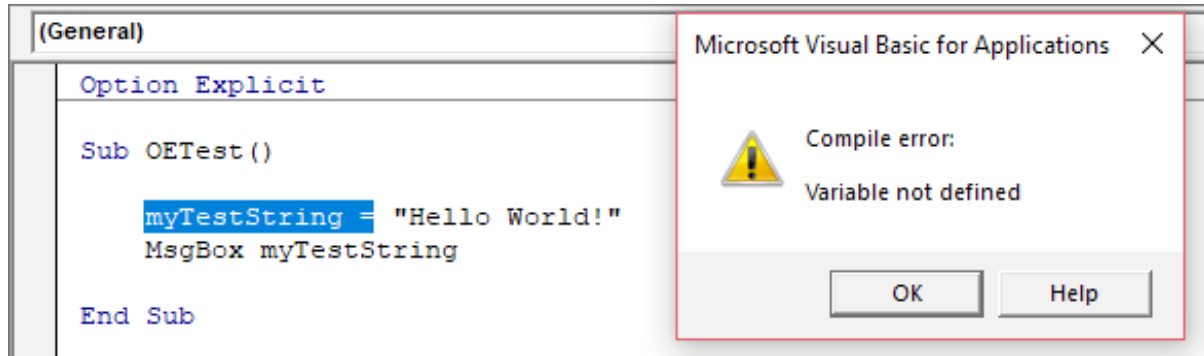
The compiler stops with an error alert and snaps back to the Visual Basic Editor to the variable that has not been declared. The procedure must be stopped and the declaration statements added before it will successfully execute.

More next month.

And then there were more…

Well we have been busy this month – and we have recruited two more to the team. Dear readers, please welcome **Hanh Tran** and **Greg Liu** to our Sydney office:

Hanh Tran is an Analyst, responsible for financial modelling, Power Query and Power BI solutions. She is also taking over the Power BI Custom Visual blog posts.

Hanh has previously worked as an analyst in Dong A Socio Holdings (Korea)'s Corporate Strategy team, and was a financial researcher at Capital Market Cooperative Research Centre (Australia), where she has gained extensive experience in financial modelling, financial analysis and business intelligence.

Looking like we've stolen his passport photo, Greg Liu is also joining us

as an Analyst and will be responsible for many of the updates / blogs on the SumProduct website and implementation of financial modelling / Power BI assignments.

In Greg's most recent job, he developed various financial models, VBA projects and business intelligence dashboards for clients to facilitate their business processes and financial reporting and analysis.

If you need assistance, rest assured we have both the resource and the experience.

Power Pivot Principles

We've been running the Power Query / Get & Transform series in our newsletter for some time now, so we thought it might be worth paying some attention to its sister feature, Power Pivot. This month, we pick up where we left off last month on importing data – by considering what happens when you filter imports.

Returning to the Table Import Wizard (introduced last time), instead of selecting 'Finish' immediately, you can select 'Preview and Filter'. This is recommended as it is always best (especially with large datasets) to import only what you need – "less is more". You can always return and pick up extra data should you need it later.
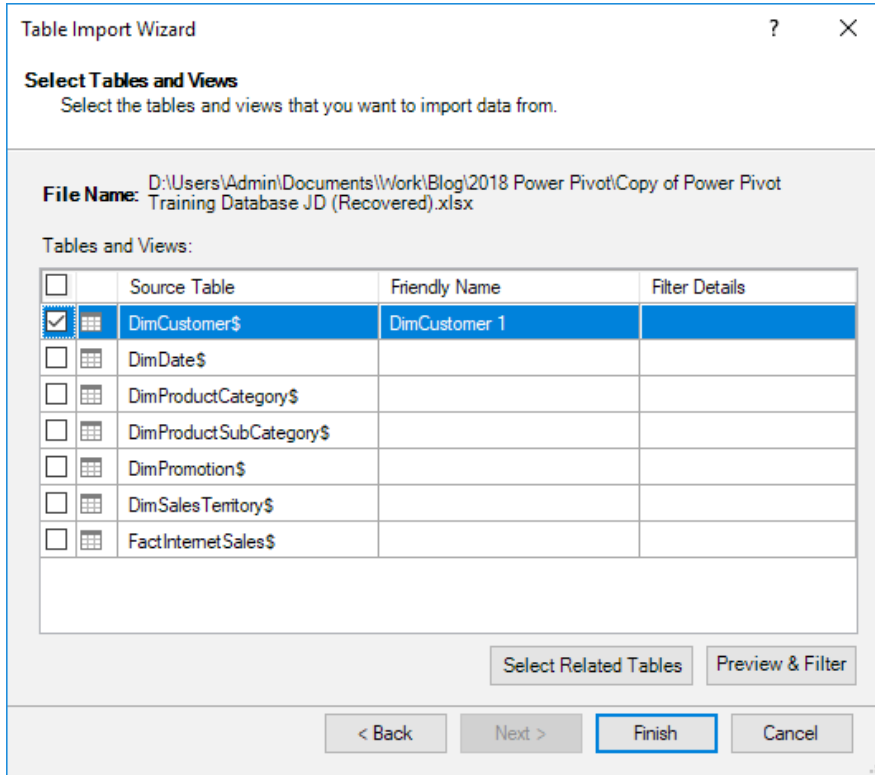
The Table Import Wizard will appear (below). This window allows us to uncheck the check box on each column of data to prevent that column from being brought into the model. We can also use the drop-down arrow on each column to filter the data and select only relevant data should this be required.

- In our example, unselect the checkbox for 'Suffix' and 'AddressLine2' – there isn't any data in these columns and therefore we don't need to bring these columns in to the model
- Select 'OK'
- Ensure that all worksheets are brought into the model except for 'DimPromotion$'
- Select 'Finish' to import.
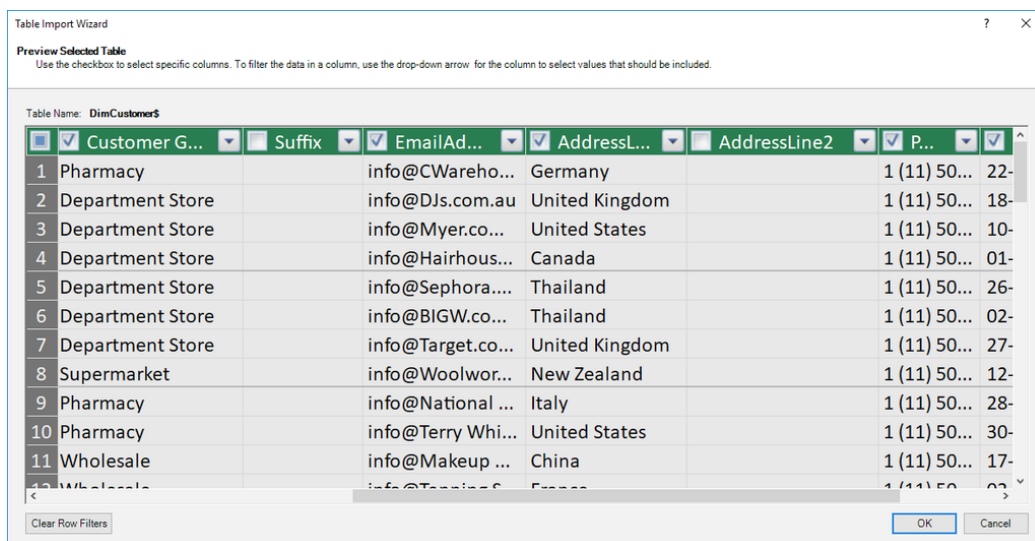
A message will appear showing that the import was successful:
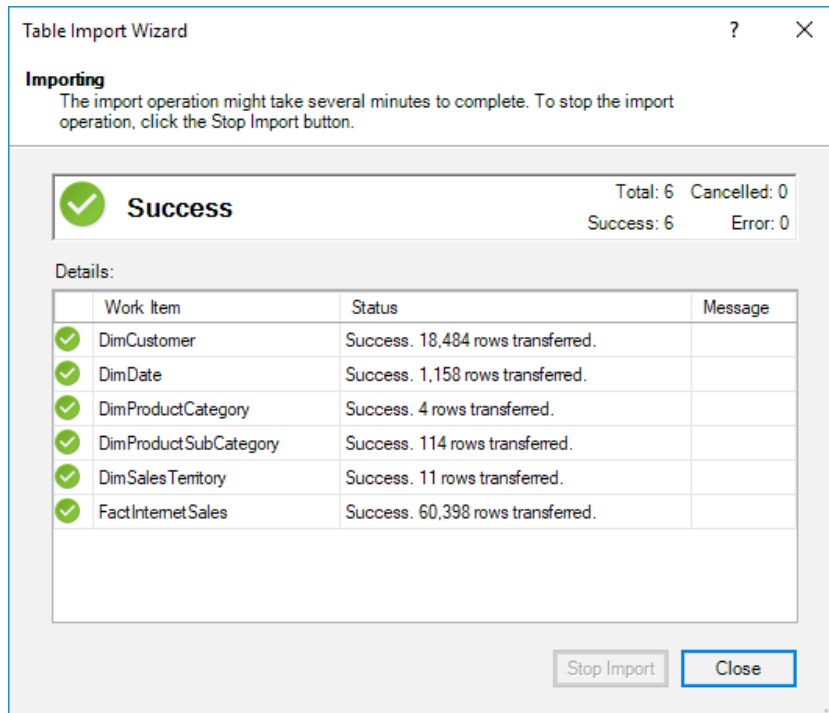
When importing multiple tables simultaneously, sometimes the final row may contain an error which does not relate to any particular table. Always read the error, but often this pertains to the fact that Power Pivot cannot recognise how the tables may be related. Take note if this is the case, but it is not an issue that has prevented a successful import of your data.

The data will now appear in separate tabs in the Power Pivot window as shown below:
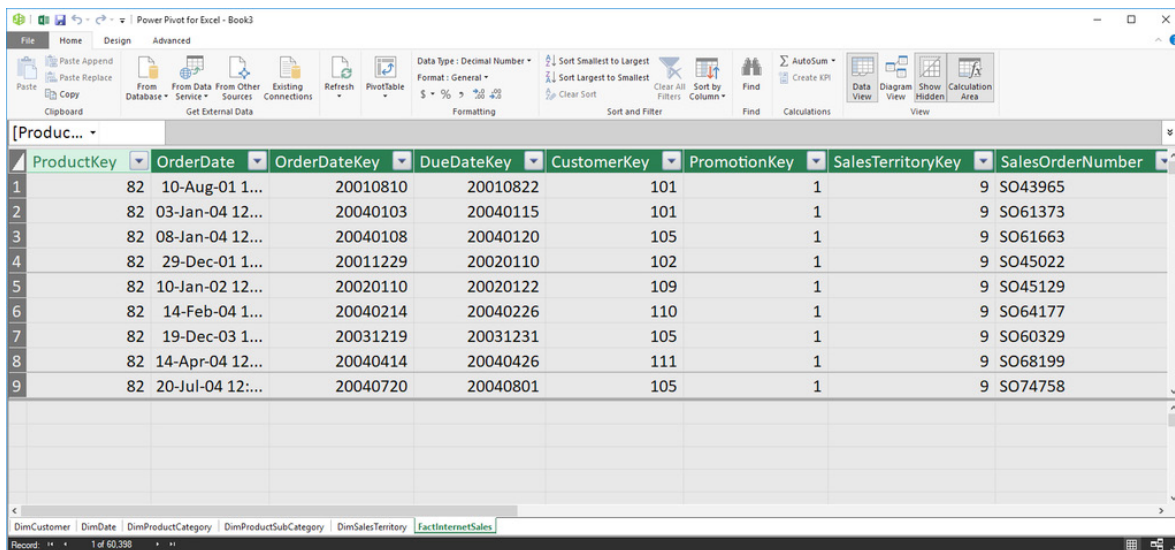
Whoops! I forgot to bring in the 'DimPromotion$' table into the model. So, let's import it now!

- Click on 'Existing Connections' under the 'Get External Data' group:
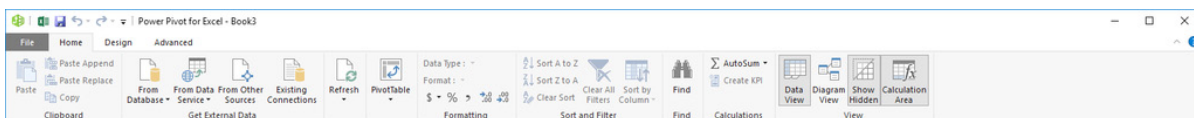
- The following dialog box will appear:
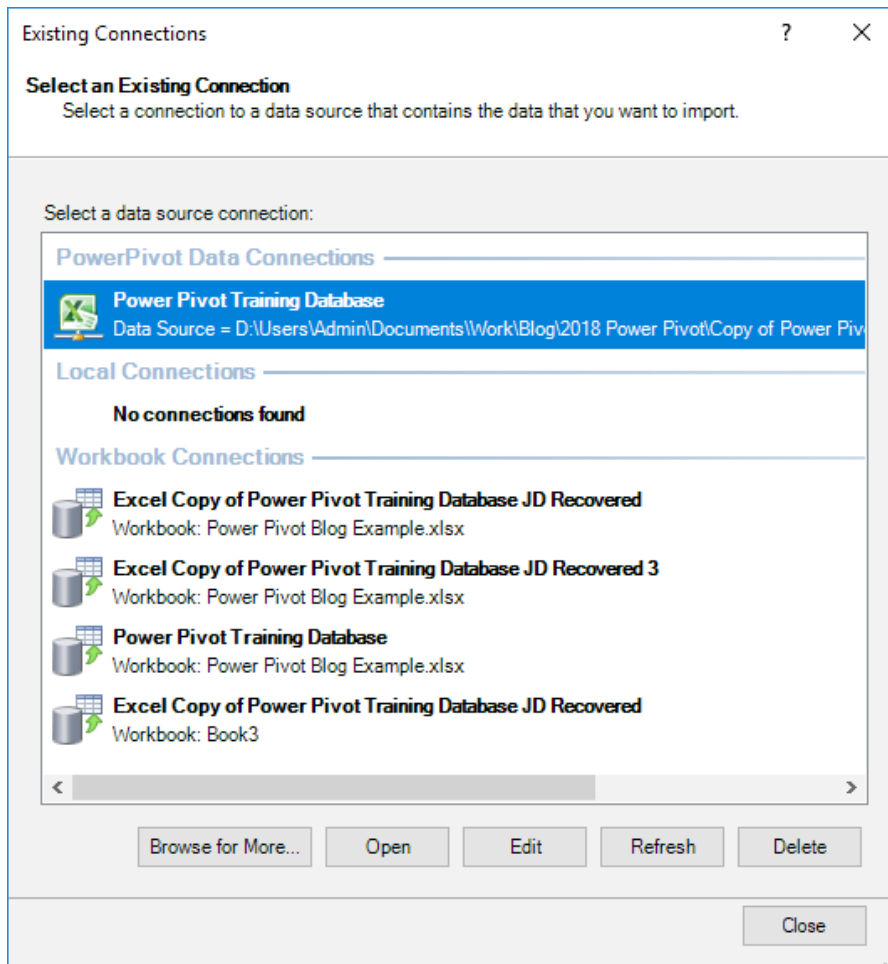
- Select the connection to the original data source
- Select 'Open'
- The 'Table Import Wizard' will appear:
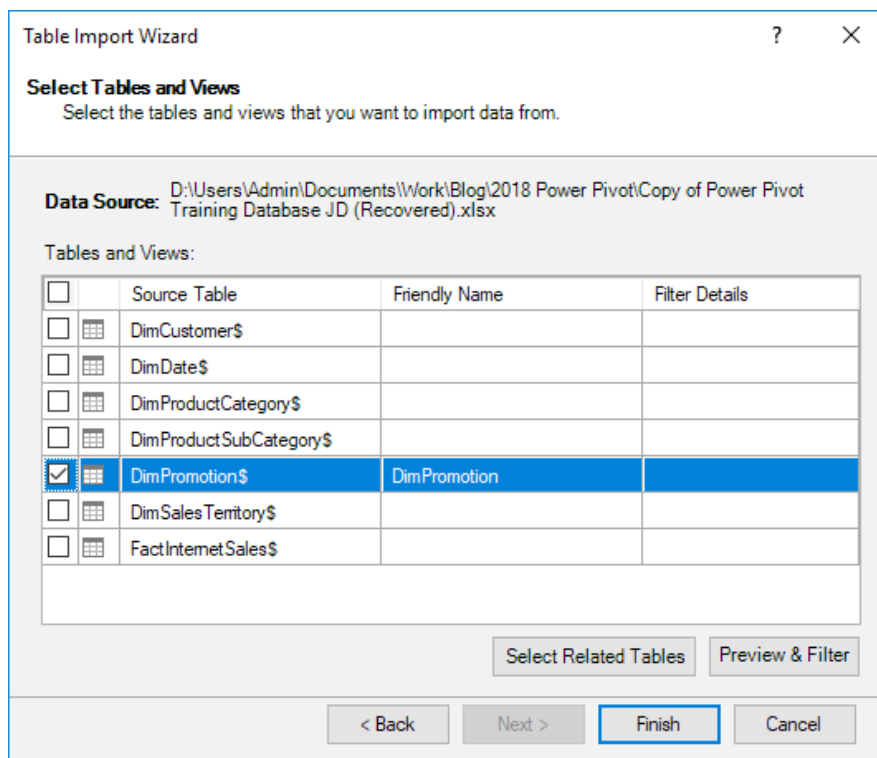
- We can select the table we missed on the original import 'DimPromotion$'
- Either 'Preview and Filter' the data or select 'Finish'.

Great – now we have the 'DimPromotion$' table in our data set. It's that easy!

We'll continue next month. Stay tuned for our next post on Power Pivot. In the meantime, please remember we have training in Power Pivot which you can find out more about at www.sumproduct.com/courses/power-pivot-power-query-and-power-bi.

Power Query Pointers

Each month we'll reproduce one of our articles on Power Query (Excel 2010 and 2013) / Get & Transform (Office 365, Excel 2016 and 2019) from www.sumproduct.com/blog. If you wish to read more in the meantime, simply check out our Blog section each Wednesday. This month, we look at dividing a full name column into first and last names.

This is a fairly common scenario. Imagine we have a column which is made up of several pieces of data we wish to extract, in this case a full name. As a programmer, I used to write chunks of code to do this, carefully stepping through the name until I reached the space. With Power Query, it's much easier.

Let's start from where we ended last month, with a file of expense data, which happens to include the full name of the employees. In order to show how this can be applied to any Excel data, let's load only the name to a query for this example.
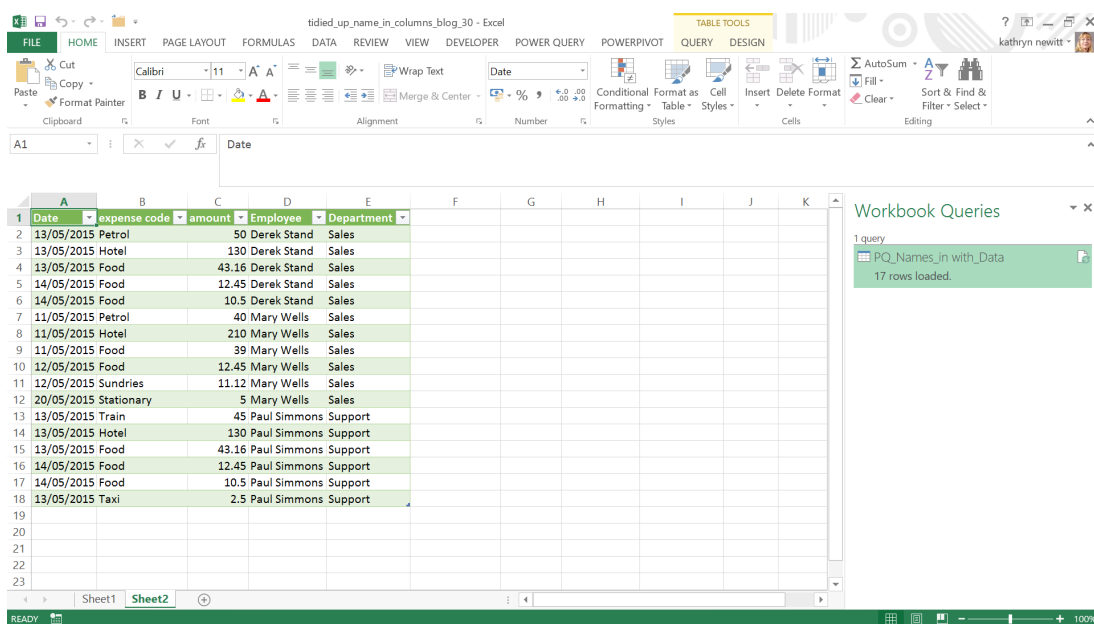

Since the data is already in a table, we'll take a copy and convert it to a range by using 'Convert to Range' option on the 'Table Tools Design' tab. Otherwise, Power Query will assume that the whole table should be loaded.
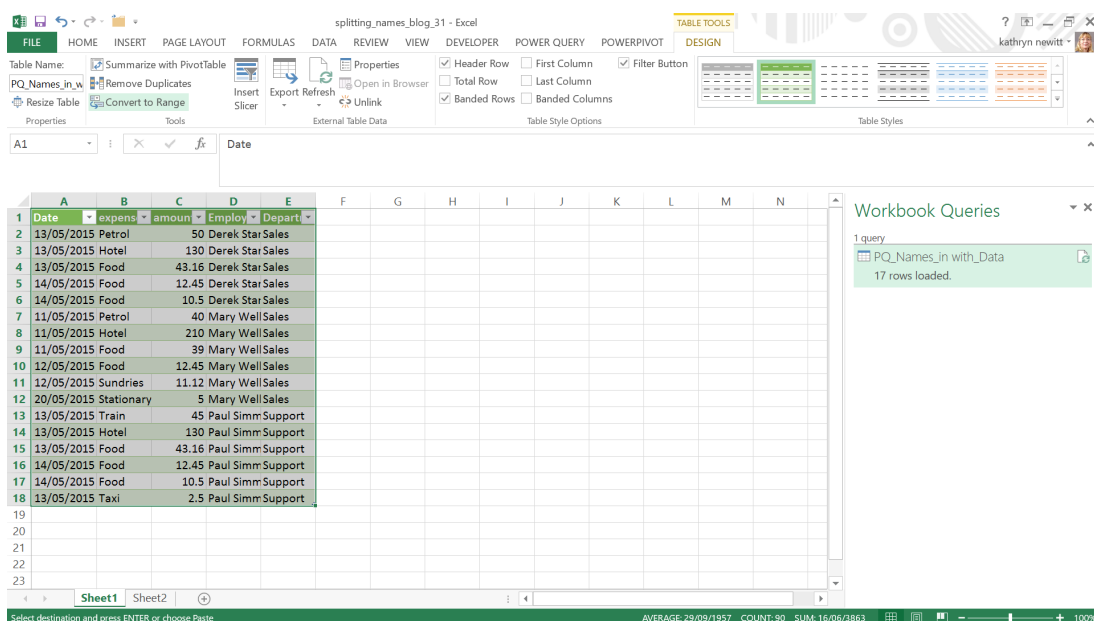
This gives me the range, which will no longer be connected to our 'PQ_Names_in_with_Data' query.
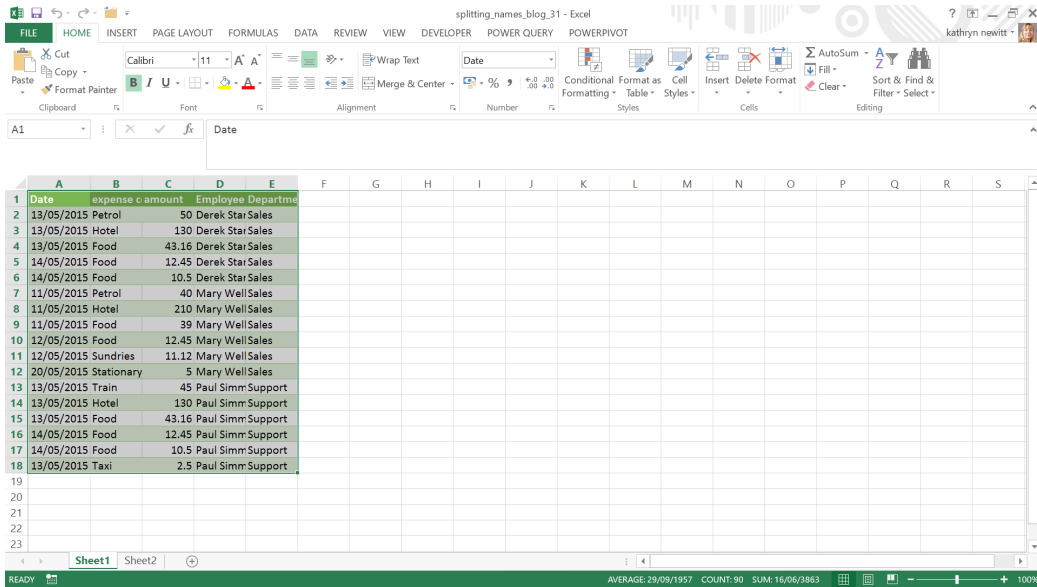
There are several approaches we could take. We could make my 'Employees' column an Excel table and load that, but we don't actually need to take that step in Excel. Instead, on the 'POWER QUERY' tab in Excel 2013 or the 'Get & Transform' section of the 'Data' tab for later versions, we will choose the 'From Excel Range/Table' option. If we don't specify the data by selecting it first, then Power Query prompts you to confirm the data you want to use:
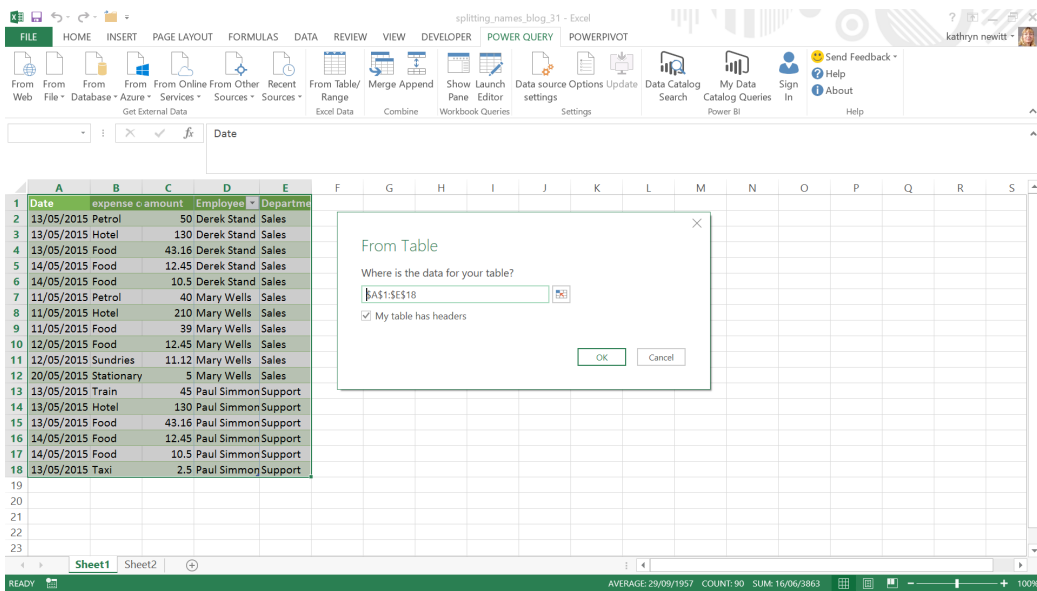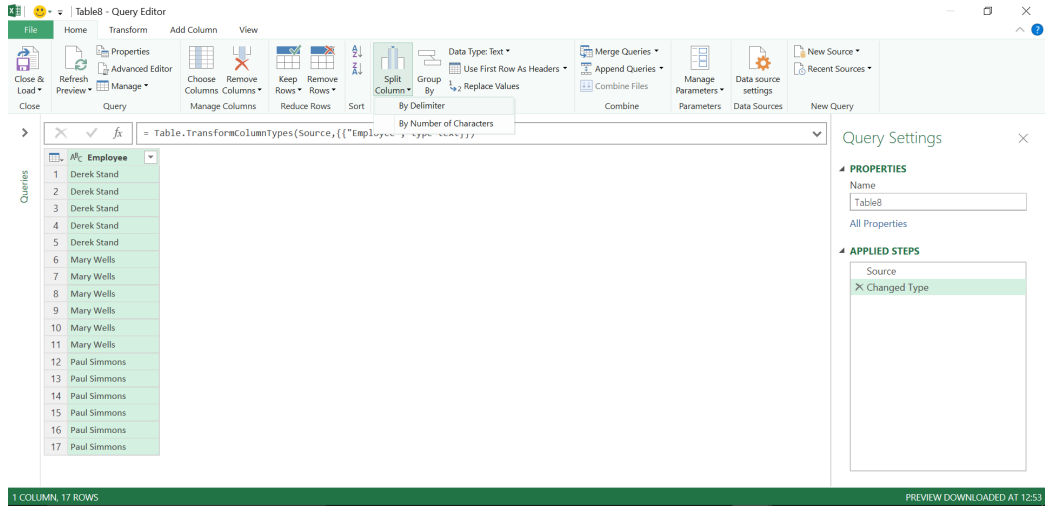

S, we can either specify cells **D1:D18** on here or we can select those cells first and Power Query will automatically load them.
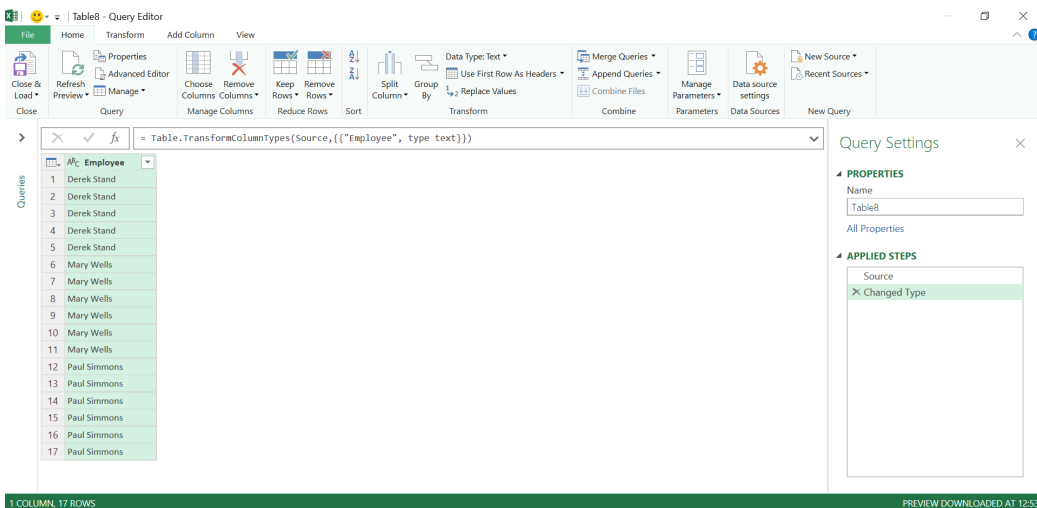
We now have our little table of data, and we are ready to split up the name.

On the 'Home' tab, there is an option to 'Split Column', and we can choose to do this 'By Delimiter' or 'By Number of Characters'.

Let's choose to split by delimiter, and the 'Split Column by Delimiter' screen appears. Power Query has correctly assumed 'Space' is the delimiter, but it's worth taking a look at the other options:
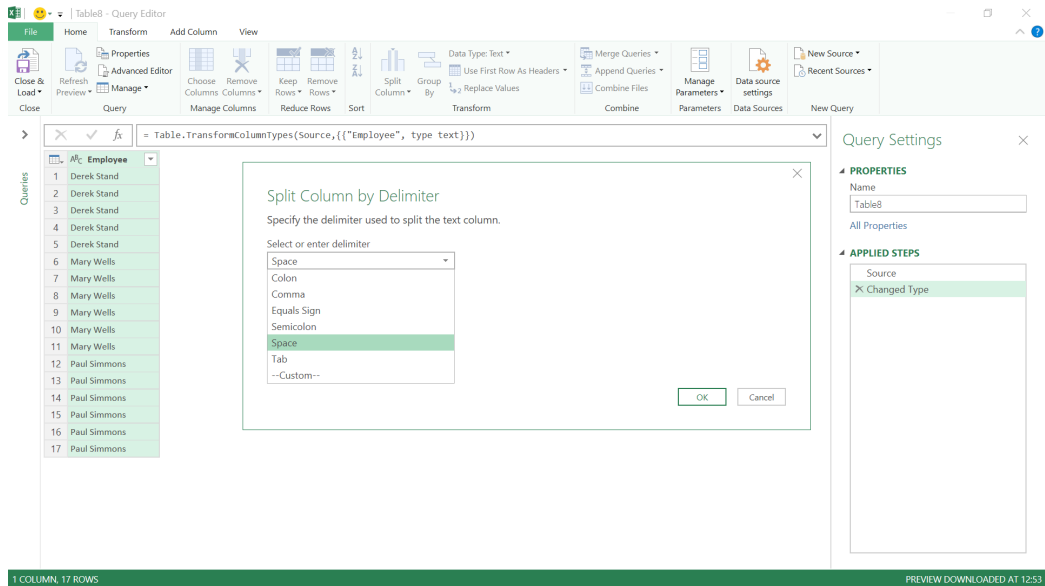

The most common options are explicitly listed and there is an option to customise our own delimiter for more complex data arrangements. Also, on the screen are a couple of other options:
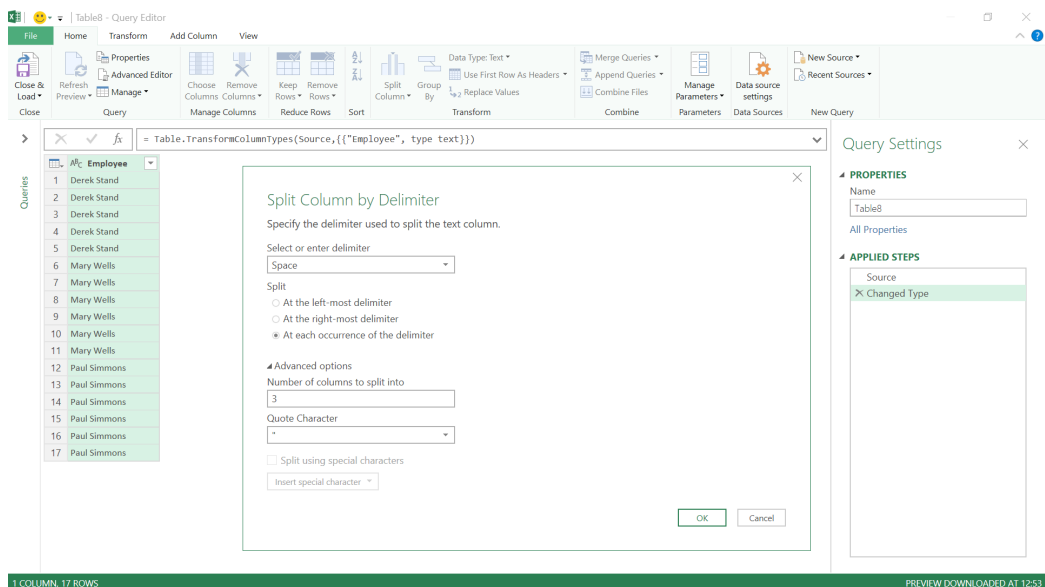
We can choose how often to split our data using the delimiter – this would be useful if some of the names included a first and second name as well as a surname, in which case we could choose to keep the first two names together by only splitting at the right-most delimiter. There are also some advanced options which allow me to specify how many columns we want to see. If we were to choose one then we'd only see the first name; if we were to choose three, the last one would contain null data. We can also choose the quote style. If we had special characters in the columns, we could also choose to use them as a delimiter.

We are happy that we wish to use the space as our delimiter and we will split each time we see a space (since we know that our data only has one space anyway). Let's choose to output to two columns.
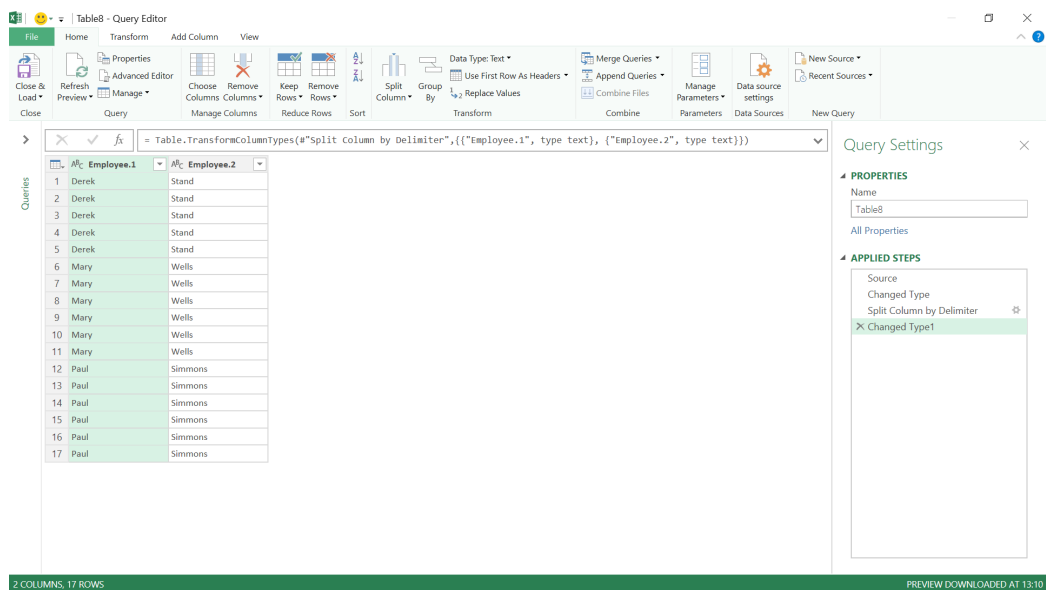
Our two new columns are named 'Employee.1' and 'Employee.2', and we may opt to 'Close and Load' which will load them to a new worksheet in my book. We rename them and insert our new columns into the original worksheet. Easy!
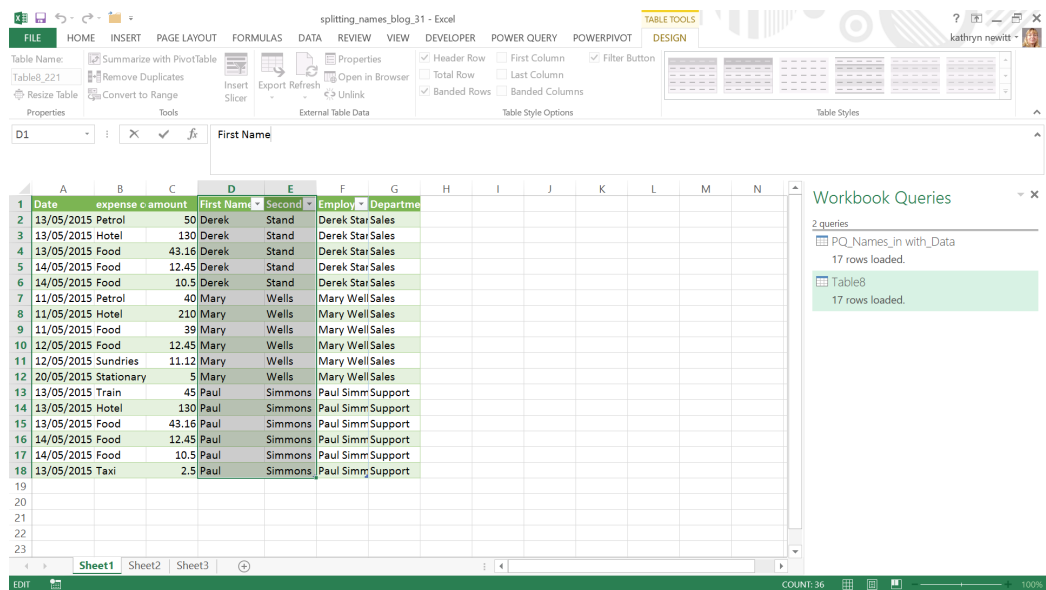
More next month!

Latest Updates for Power BI Desktop

March's updates have recently come out and continue to improve the Filter pane and add to the DAX repertoire. But that's not all. Here's the full list:

Reporting

- Single select slicer
- Heat map support for Bing maps
- Cross-highlight by axis labels
- Default ToolTip formatting
- Static web URL support for buttons, shapes and images
- Filter pane improvement

- Page alignment options
- Selection pane improvements
- Formatting updates for maps:
    - Adjust map points to a smaller size
    - Ability to add zoom buttons
- Accessible visual interaction

Analytics

- Q&A recommendations for improving results
- Show dates as a hierarchy now Generally Available

Modelling

- New modelling view now Generally Available
- New DAX functions

Custom visuals

- New certified custom visuals setting in admin portal
- Craydec Regression Chart
- Power Slicer

Modelling

- PDF connector now supports tables spanning multiple pages (Preview)
- Intelligent Plant's Industrial App Store connector
- Azure Cost Management connector.

Let's go through each new feature in turn.

Single select slicer

The single select slicer option has been revamped to support radio buttons. It allows one and only one selection. For drop-down slicers, it closes the drop-down after selection, making the interaction much quicker for end users.
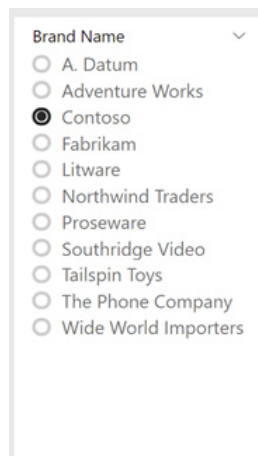

You can still use the previous behaviour, where clicking a selection replaces the filter but they can **CTRL + Click** to multiselect, by turning on multi-select with **CTRL** option instead"
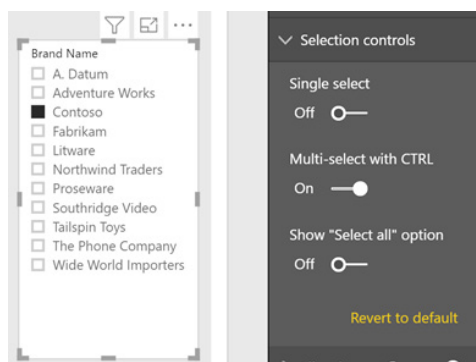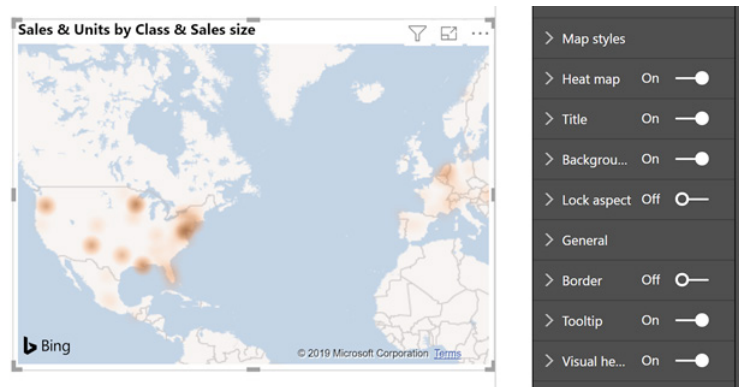
Heat map support for Bing maps

You can now enable a heat map formatting option for Microsoft's circle Bing map visual. You'll see an option to convert all the location dots on your map to a heat map layer through the Formatting pane.
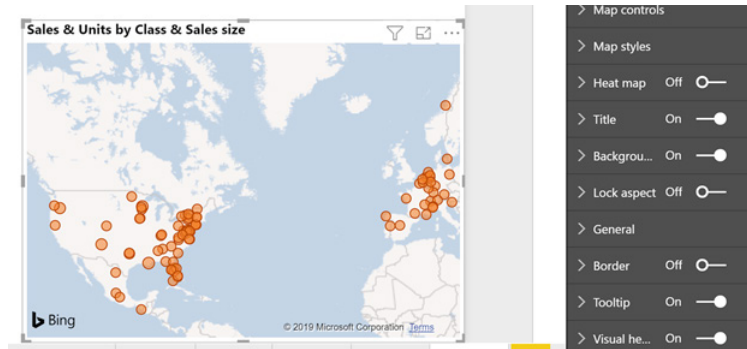

Once that option is turned on the map will automatically replace all the dots with the heat map layer.

If you don't have anything in the 'Size' field well bucket, the gradient is based on location density (how many dots are in that area). If you also have a measure in the 'Size' bucket, the results are weighted by the measure's value too.

When you open the heat map Formatting card, you'll also many formatting controls. You can set the radius and units for the radius to adjust the layer in addition to the colours used and their transparency.
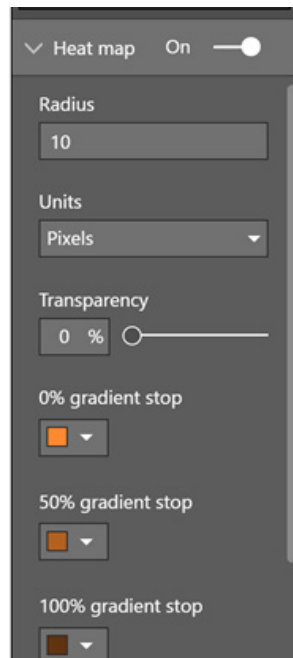

While using the heat map layer, you won't be able to select individual points or see ToolTips.

Cross-highlight by axis labels

You can now use the axis category labels to cross-highlight, just like the data points in the visual. This is very useful when a category might be very small and hard to click.
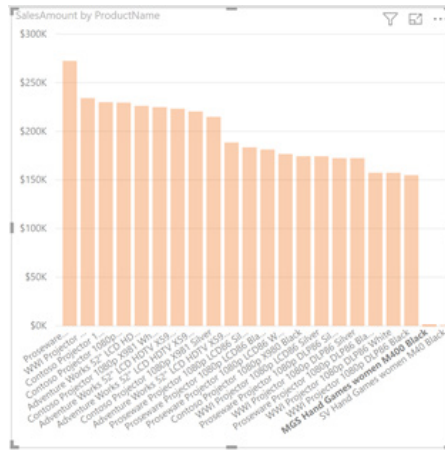
Another use is if a category is broken out by another series in the legend. This lets you select all values with one click.
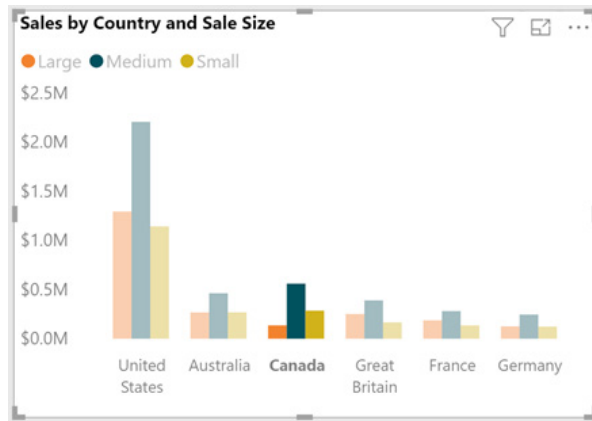
When you cross-highlight through the axis labels, the axis label becomes emboldened.

Default ToolTip formatting

You can now format the default ToolTip for each visual in your report. You can modify the ToolTip colours, fonts and transparency, which you can find in the 'ToolTip' card of the Formatting pane.
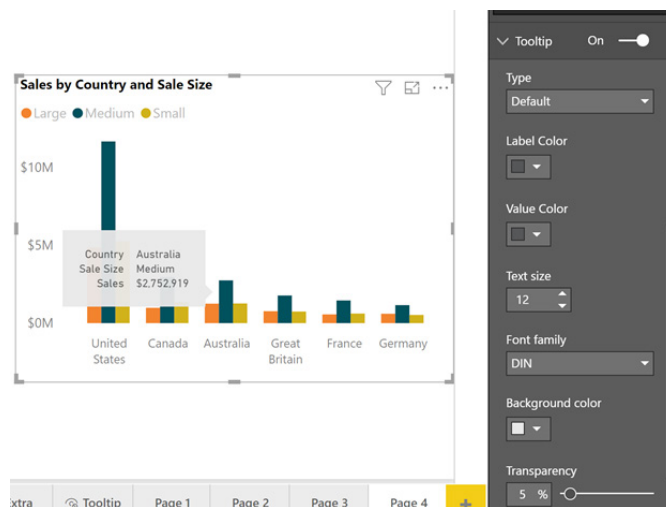
To easily set these options across your whole report, you can control them as part of your theme. Microsoft even provides an example of the JSON for the ToolTip section specifically:

```
"visualStyles":{
    "*":{
        "*":{
            "visualTooltip": [{
                "type": "Default",
                "fontFamily": "Arial",
                "fontSize": 11,
                "valueFontColor": {"solid": {"color": "#5B3780"}},
                "titleFontColor": {"solid": {"color": "#5289BF"}},
                "transparency": 2,
                "background": {"solid": {"color": "#FFE1F0"}}
            }]
        }
    }
}
```

## Static web URL support for buttons, shapes and images

You can now format the default ToolTip for each visual in your report. You can modify the ToolTip colours, fonts and transparency, which you can find in the 'ToolTip' card of the Formatting pane.
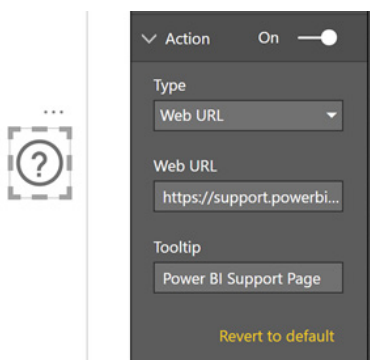
The software will automatically take you to the URL when you click on the button (**CTRL + Click** in edit mode). In the Power BI Service, a new tab for the site will be opened. For this to work, the URL will need to be a valid URL starting with http:// or https://.
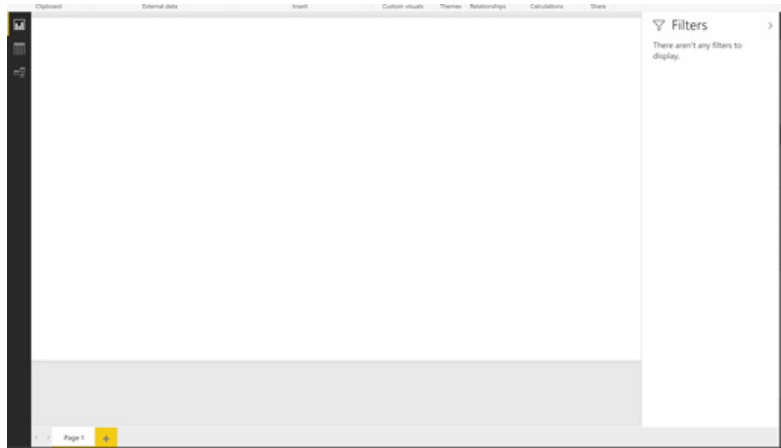
Filter pane improvement

The options for report consumers have been simplified with this update. Consumers of reports can no longer delete a 'Filter' card in the Filter pane. Instead, they now have a 'Clear' button, which ensures they cannot create an issue they cannot fix themselves.
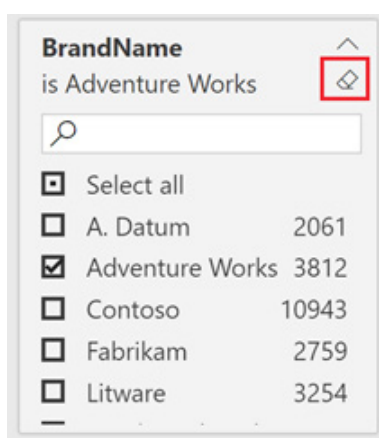
Page alignment options

You can now choose to align your report pages to the top the view instead of the centre through the 'Global Report' settings.

The 'Align the canvas to the top of the wallpaper' option is now the default for new reports where users are using new filtering experiences.
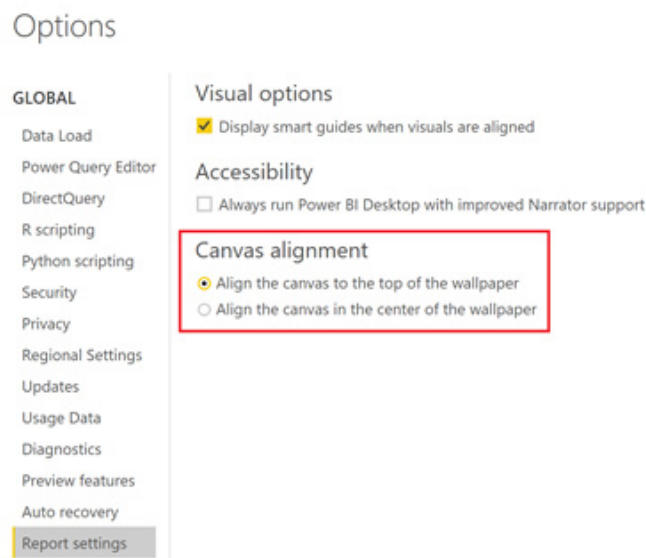
Changing this setting will only apply to new reports going forward.

Selection pane improvements

You can now double click an object in the Selection pane to rename the title. If the title is off currently, you can still rename it through the Selection pane to make it easier to identify different objects in the list.
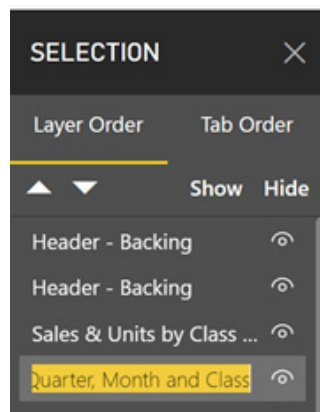
You can also use **SHIFT + Click**, along with **CTRL + Click**, to quickly and easily select many objects in the Selection pane at once and adjust their visibility all together using the 'Show' and 'Hide' options at the top of the pane.

Formatting updates for maps

ADJUST MAP POINTS TO A SMALLER SIZE

If the default bubble size is too large on the bubble Bing maps, you may now adjust the bubbles to a smaller size. All you have to do is slide the 'Size' control under the 'Bubbles' card to the left to reduce the size.

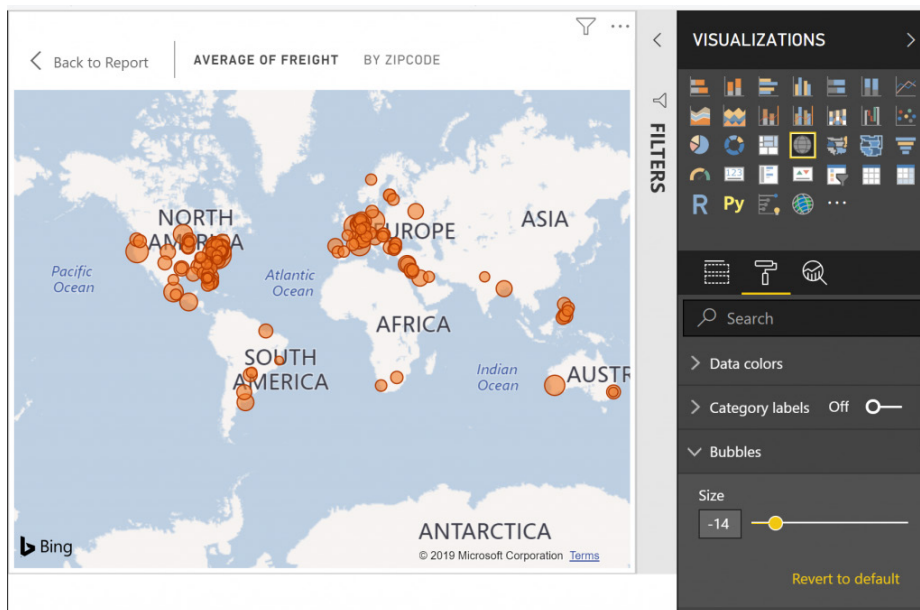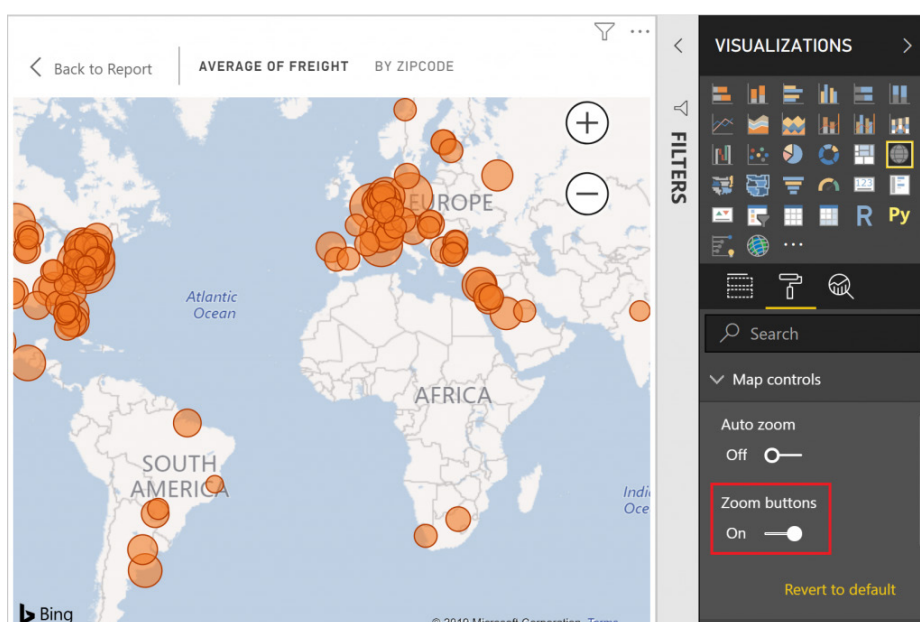### ABILITY TO ADD ZOOM BUTTONS

This update also sees the addition of the ability to add zoom buttons to your map. Zoom buttons can make it easier to zoom in and out of the map, especially if you don't have a mouse with a scroll wheel on it. You can turn them on through the 'Zoom' buttons toggle under the 'Map controls' card.

Accessible visual interaction

You can now access data points on many of the built-in visuals using keyboard navigation. When a visual is in focus, pressing CTRL + Right Arrow will move focus inside the visual. Focus will now cycle between the plot area, categorical axis and legend (if it exists) using the TAB key. Press ENTER to select either the plot area or the legend and from there you can use:

- **TAB** or **Arrow Keys** to navigate between data points or legend items
- **ENTER** or **SPACE** to select and cross-highlight that data point
- **CTRL + ENTER** or **CTRL + SPACE** to cross-highlight multiple data points
- **CTRL + SHIFT + C** to clear all of the selection
- **SHIFT + F10** or the designated key on your keyboard to open the context menu to access options like 'Insights' and 'Copy'.
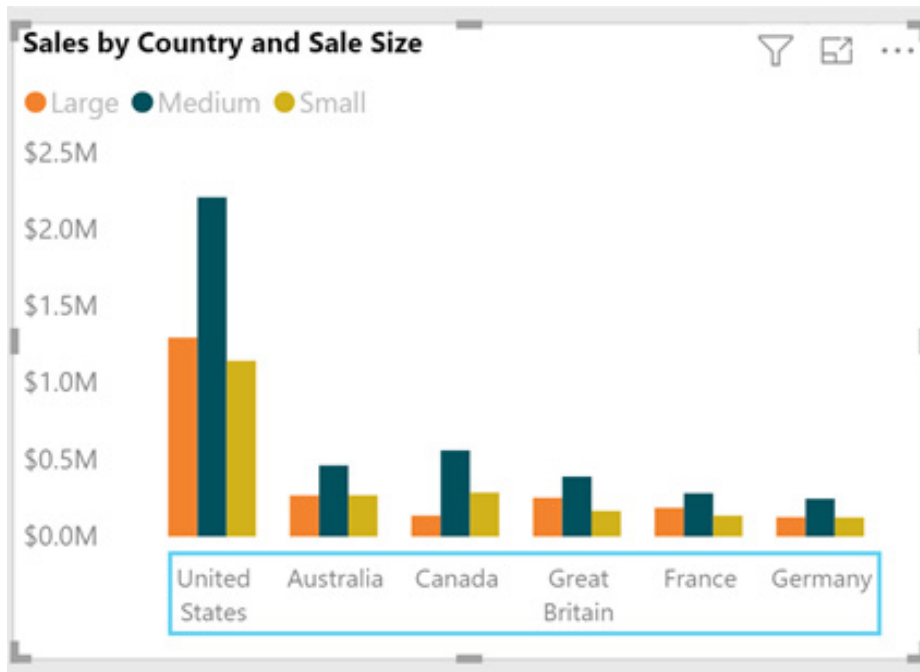
Q&A recommendations for improving results

The Q&A pop up dialog for reports now includes 'Did you mean?' recommendations to help improve results. This includes terms that are misspelled or not understood by Q&A, *viz*.
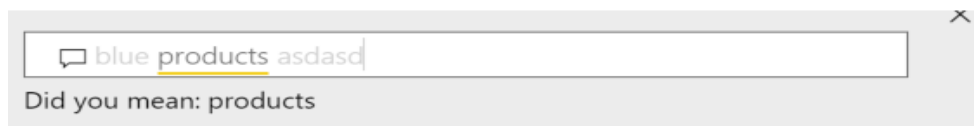
It will also surface what results are being shown when terms are ambiguous:

Whether you see 'Did you mean' or 'Showing results for' depends on the result confidence, *e.g.* if you have many greyed out terms in the utterance you are more likely to see a 'Did you mean'. When you click on this utterance, it should replace the text in the text box and show a visualisation for the new utterance.

Show dates as a hierarchy now Generally Available

For each date column, Power BI now shows each hierarchy level in the field list. The entire hierarchy, or a specific selection from the hierarchy can be used in visuals.
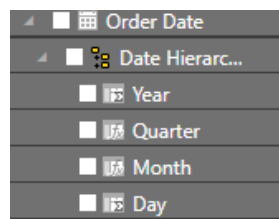
New modelling view now Generally Available

The new modelling view is now Generally Available and includes:

- Bulk editing of columns, measures and tables
- Setting display folders on columns, measures and hierarchies
- Dragging and dropping to display folders
- Multiple diagram layouts.
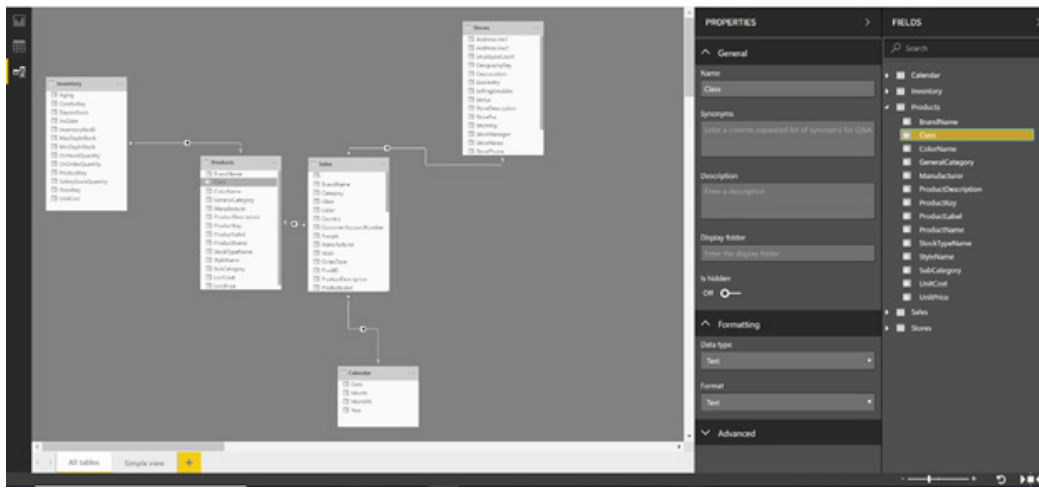
New DAX functions

You can now use either **ContainsString** or **ContainsStringExact** to get a Boolean value returned letting you know if a text field contains a specific string. **ContainsStringExact** is case sensitive. Another new function this month is **DistinctCountNoBlank** to return a SQL like distinct count where blank values aren't counted.

Microsoft has also extended the **LookupValue** function to now take an optional last parameter to avoid raising an error. Lastly, the **All** function has been extended so that using the **All** function without arguments will clear all filters in the filter context.

Intellisense support is also supported for all these functions except the **All** updates and the new **DistinctCountNoBlank**, both of which will come in the next release.

New certified custom visuals setting in admin portal

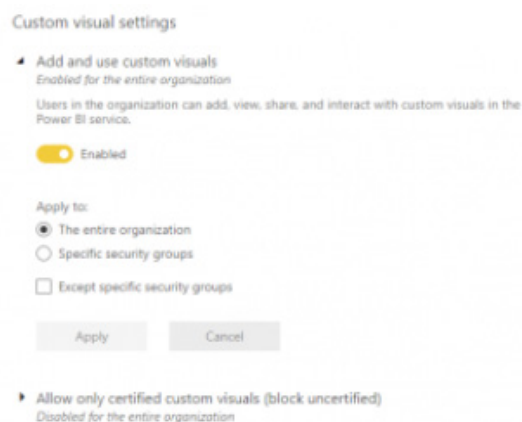IT administrators will have more control over the usage of custom visuals in their organisation. With this new admin control setting enabled, users may view and use reports containing certified custom visuals only. Uncertified visuals will not render.

Once the new setting, 'Allow only certified custom visuals', is enabled, any report containing uncertified custom visuals in the report will display an error message.

This setting will not affect organisational visuals (visuals coming from the organisational store) as those are hand-picked and allowed by the administrator. This setting only affects uncertified custom visuals from the Marketplace or private visuals that were uploaded using 'Import from file'.

Craydec Regression Chart

The Craydec Regression Chart custom visual allows you to plot your data on a scatter chart, without aggregating anything (unless you want to), add a linear regression to it, and then split it out by multiple categories as a small multiple. This visual also includes dynamic data loading, which ensures that it loads quickly, and it can even handle 10,000+ rows of data with relative ease.

Presently, there's a free version of this visual available to try out, but with a license you can:

- Plot up to 30,000 data points
- Add labels for small multiples
- Assign custom colours and opacity for groups.

Maximum weight vs. engine size (nof gears / transmission type)
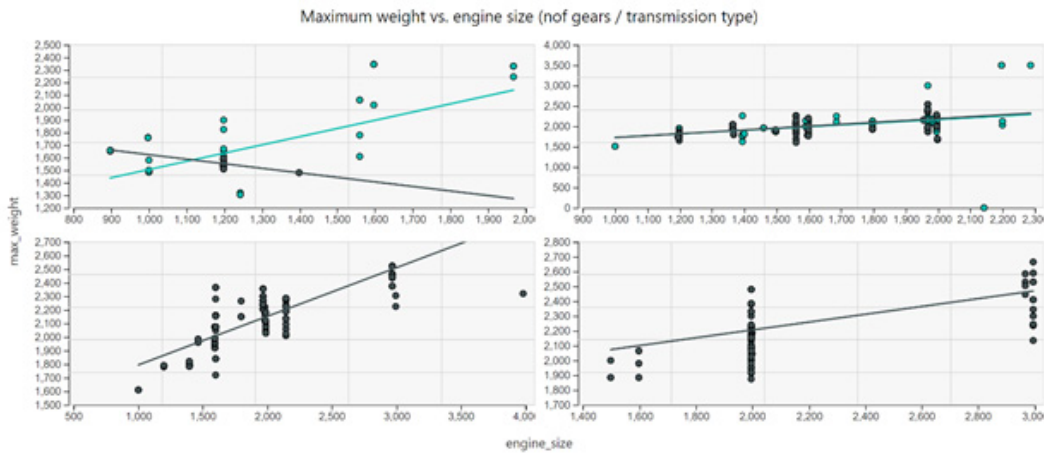
Power Slicer

The Power Slicer custom visual lets you add filter your report by different categories right on the report page, similar to the default Slicer visual, but with advanced layout and formatting support.

This visual supports:

- A list, dropdown, hierarchy, and chiclet layout
- Setting a dynamic default selection set using JavaScript: for example, **(new Date()).getMonth()+1** will set the default selection to the current month
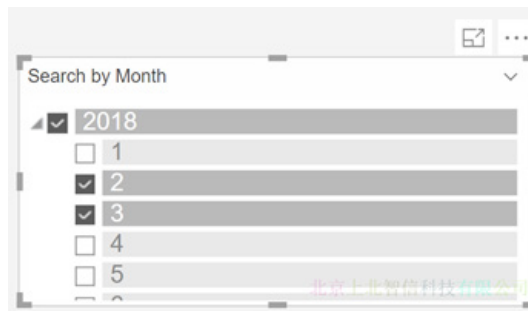- Control over the text and background colours for both the selected and unselected states

PDF connector now supports tables spanning multiple pages (Preview)

This update also adds support for certain kinds of tables spanning multiple pages in the PDF Files connector Preview.

Intelligent Plant's Industrial App Store connector

Intelligent Plant's Industrial App Store Connector enables Microsoft's analytics and visualisations to be applied to real time and historical process data. The Industrial App Store Power BI Connector connects to Intelligent Plant's Industrial App Store, while all data remains securely and safely on premises. The plant data may be centralised in a corporate data lake or globally dispersed across many sites.

Azure Cost Management connector

Azure Cost Management provides access to your Azure cost and usage data. With it, you can make powerful and flexible reports to understand your spending, optimise your usage, and better administer your Azure deployment. This connector currently supports users on Microsoft Customer Agreement, with support for more on the way. This connector works in the Power BI Desktop currently and will be added to the Power BI Service after the next Gateway release.

That's it until the May newsletter.

The A to Z of Excel Functions: DAY

This function returns the day of a date, represented by a serial number. The **day** is given as an integer ranging from 1 to 31.

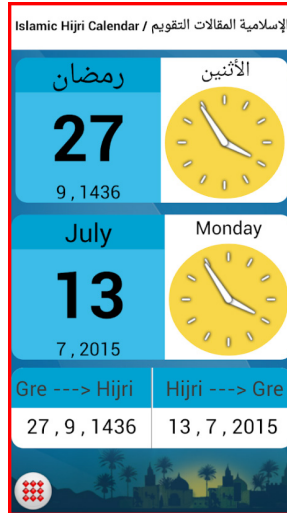The DAY function employs the following syntax to operate:

DAY(serial_number)

The **DAY** function has the following arguments:

- **serial_number:** this is required. The date of the day you are trying to find. Dates should be entered by using the **DATE** function, or as results of other formulas or functions. For example, use **DATE(2008,5,23)** for the 23rd day of May, 2008. Problems can occur if dates are entered as text.

It should be further noted that:

- Microsoft Excel stores dates as sequential serial numbers so they can be used in calculations. By default, January 1, 1900 is serial number 1, and January 1, 2008 is serial number 39448 because it is 39,447 days after January 1, 1900
- Values returned by the **YEAR**, **MONTH** and **DAY** functions will be Gregorian values regardless of the display format for the supplied date value. For example, if the display format of the supplied date is Hijri, the returned values for the **YEAR**, **MONTH** and **DAY** functions will be values associated with the equivalent Gregorian date.

Please see the example below:

The A to Z of Excel Functions: DAYS

This shouldn't be confused with the **DAY** function. This function returns the number of days between two dates.
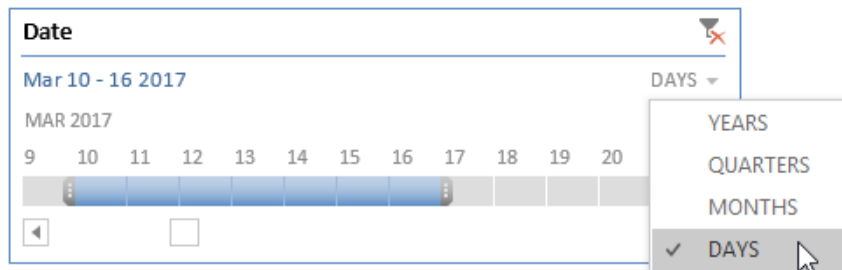
The DAYS function employs the following syntax to operate:

DAYS(end_date, start_date)

The **DAYS** function has the following arguments:

- **end_date:** this is required and should be a date not prior to **start_date**
- **start_date:** this is also required. The dates **start_date** and **end_date** are the two dates between which you want to know the number of days.

It should be further noted that:

- Excel stores dates as sequential serial numbers so that they can be used in calculations. By default, Jan 1, 1900 is serial number 1, and January 1, 2008 is serial number 39448 because it is 39447 days after January 1, 1900
- If both date arguments are numbers, **DAYS** uses **end_date – start_date** to calculate the number of days in between both dates. Be clear, **start_date** is <u>not</u> counted in the number of days between the two dates
- If either one of the date arguments is text, that argument is treated as **DATEVALUE(date_text)** and returns an integer date instead of a time component
- If date arguments are numeric values that fall outside the range of valid dates, **DAYS** returns the *#NUM!* error value
- If date arguments are strings that cannot be parsed as valid dates, **DAYS** returns the *#VALUE!* error value
- This function was new to Excel 2013.

Please see the example below:

	A	B	C
1	**Start Date**	**End Date**	
2	01 January 2020	31 December 2020	
3			
4			
5	**Formula**	**Description**	**Result**
6	=DAYS("17 Aug 2008","17 Sep 1967")	Finds the number of days between the start date (17 Sep 1967) and end date (17 Aug 2008). When you enter a date directly in the function, you must enclose it in quotation marks. Result is 14,945.	14,945
7	=DAYS(B2,A2)	Finds the number of days between the start date in A2 (1 Jan 2020) and the end date in A3 (31 Dec 2020). Note that 2020 is a leap year and the number of days is 365 as 1 Jan 2020 is excluded.	365
8			

Still not sure why you can't just subtract one date from another…

The A to Z of Excel Functions: DAYS360

Our final function for this month returns the number of days between two dates based on a 360-day year (twelve 30-day months), which is used in some accounting calculations. You should use this function to help compute payments if your accounting system is based on twelve 30-day months.

The **DAYS360** function employs the following syntax to operate:

DAYS360(start_date, end_date, [method])

The **DAYS360** function has the following arguments:

- **start_date:** this is required and represents the start date
- **end_date:** this is also required and represents the end date. If **start_date** occurs after **end_date**, the **DAYS360** function returns a negative number. Dates should be entered by using the DATE function or derived from the results of other formulas or functions. For example, use **DATE(**2008,5,23**)** to return the 23rd day of May, 2008. Problems can occur if dates are entered as text
- **Method:** this argument is optional and is a logical value that specifies whether to use the U.S. or European method in the calculation, *viz.*

Method	Defined
FALSE or omitted	**U.S. (NASD) method.** If the starting date is the last day of a month, it becomes equal to the 30th day of the same month. If the ending date is the last day of a month and the starting date is earlier than the 30th day of a month, the ending date becomes equal to the first day of the next month; otherwise, the ending date becomes equal to the 30th day of the same month.
TRUE	**European method.** Starting dates and ending dates that occur on the 31st day of a month become equal to the 30th day of the same month.

ase see our final example below:

	A	B	C
1	**Dates**		
2	1 Jan 20		
3	30 Jan 20		
4	1 Feb 20		
5	31 Dec 20		
6			
7			
8	**Formula**	**Description**	**Result**
9	=DAYS360(A3,A4)	Number of days between 30 Jan 20 and 1 Feb 20 based upon a 360-day year.	1
10	=DAYS360(A2,A5)	Number of days between 1 Jan 20 and 31 Dec 20 based upon a 360-day year.	360
11	=DAYS360(A2,A4)	Number of days between 1 Jan 20 and 1 Feb 20 based upon a 360-day year.	30

More Excel Functions next month…

Upcoming SumProduct Training Courses

Location	Course	Date	Duration
Sydney	Excel Tips & Tricks	1 Apr 2019	1 Day
Sydney	Financial Modelling	2 - 3 Apr 2019	2 Days
Sydney	Power Pivot, Power Query and Power BI	8 - 10 Apr 2019	3 Days
Auckland	Financial Modelling	6 - 7 May 2019	2 Days
Wellington	Financial Modelling	9 - 10 May 2019	2 Days
Melbourne	Excel Tips & Tricks	21 May 2019	1 Day
Melbourne	Financial Modelling	22 - 23 May 2019	2 Days
Melbourne	Power Pivot, Power Query and Power BI	28 - 30 May 2019	3 Days
Sydney	Excel Tips & Tricks	3 Jun 2019	1 Day
Sydney	Financial Modelling	4 - 5 Jun 2019	2 Days
Sydney	Power Pivot, Power Query and Power BI	10 - 12 Jun 2019	3 Days
Sydney	Excel Tips and Tricks	15 Jul 2019	1 Day
Sydney	Financial Modelling	16 - 17 Jul 2019	2 Days
Sydney	Power Pivot, Power Query and Power BI	22 - 24 Jul 2019	3 Days
Sydney	Excel Tips and Tricks	19 Aug 2019	1 Day
Melbourne	Financial Modelling	20 - 21 Aug 2019	2 Days
Sydney	Financial Modelling	20 - 21 Aug 2019	2 Days
Melbourne	Power Pivot, Power Query and Power BI	26 - 28 Aug 2019	3 Days
Sydney	Power Pivot, Power Query and Power BI	26 - 28 Aug 2019	3 Days

Melbourne	Excel Tips and Tricks	17 Sep 2019	1 Day
Sydney	Excel Tips and Tricks	23 Sep 2019	1 Day
Sydney	Financial Modelling	24 - 25 Sep 2019	2 Days
Sydney	Power Pivot, Power Query and Power BI	7 - 9 Oct 2019	3 Days
Melbourne	Financial Modelling	14 - 15 Oct 2019	2 Days
Melbourne	Power Pivot, Power Query and Power BI	22 - 24 Oct 2019	3 Days
Sydney	Excel Tips and Tricks	4 Nov 2019	1 Day
Sydney	Financial Modelling	5 - 6 Nov 2019	2 Days
Sydney	Power Pivot, Power Query and Power BI	11 - 13 Nov 2019	3 Days
Melbourne	Excel Tips and Tricks	25 Nov 2019	1 Day
Melbourne	Financial Modelling	26 - 27 Nov 2019	2 Days
Melbourne	Power Pivot, Power Query and Power BI	9 - 11 Dec 2019	3 Days
Sydney	Power Pivot, Power Query and Power BI	9 - 11 Dec 2019	3 Days
Sydney	Excel Tips and Tricks	16 Dec 2019	1 Day
Sydney	Financial Modelling	17 - 18 Dec 2019	2 Days

Key Strokes

Each newsletter, we'd like to introduce you to useful keystrokes you may or may not be aware of. This month, we thought we would continue going through the function keys, this time with the **CTRL + ALT** combination:

Keystroke	What it does
CTRL + ALT + F1	Insert new macro sheet
CTRL + ALT + F2	Open file
CTRL + ALT + F3	New Name
CTRL + ALT + F4	Close application
CTRL + ALT + F5	Refresh all
CTRL + ALT + F9	Full recalculation
CTRL + ALT + F12	Thai dictionary (immensely useful)

There are over 540 keyboard shortcuts in Excel. For a comprehensive list, please download our Excel file a www.sumproduct.com/thought/keyboard-shortcuts. Also, check out our new daily **Excel Tip of the Day** feature on the www.sumproduct.com homepage.

Our Services

We have undertaken a vast array of assignments over the years, including:
· **Business planning**
· **Building three-way integrated financial statement projections**
· **Independent expert reviews**
· **Key driver analysis**
· **Model reviews / audits for internal and external purposes**
· **M&A work**
· **Model scoping**
· **Power BI, Power Query & Power Pivot**
· **Project finance**
· **Real options analysis**
· **Refinancing / restructuring**
· **Strategic modelling**
· **Valuations**
· **Working capital management**

If you require modelling assistance of any kind, please do not hesitate to contact us at contact@sumproduct.com.

Link to Others

These newsletters are not intended to be closely guarded secrets. Please feel free to forward this newsletter to anyone you think might be interested in converting to "the SumProduct way".

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Any Questions?

If you have any tips, comments or queries for future newsletters, we'd be delighted to hear from you. Please drop us a line at newsletter@sumproduct.com.

Training

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