Power BI Desktop: New Data Modeling Features

# **Summary**

The purpose of this document is to serve as supporting reference to new data modeling and analysis features added to the Power BI Desktop application. Power BI Desktop is a free business intelligence design and development application containing rich capabilities in data connectivity, transformation, modeling, and report/dashboard development. Business intelligence artifacts created within Power BI Desktop such as datasets and reports can be published to the Power BI Service and consumed by Power BI users.

* New features and enhancements related to data connectivity, transformations, report authoring and general Power BI features are outside the scope of this document.
* Power BI Documentation Update Archive is maintained here: <http://bit.ly/2t6fRUE>
* This document will be updated with future Power BI report authoring updates (e.g. Nov 2017 Update).
  + As of 10/6/17, this document only identifies new report authoring features and improvements since the September 2015 update.
* No data modeling enhancements or new features were released in the months with red background formatting.

# **Monthly Update Links**

|  |  |  |
| --- | --- | --- |
| [Sep-2015](#Sep2015) | [Oct-2015](#Oct2015) | [Nov-2015](#Nov2015) |
| [Dec-2015](#Dec2015) | [Jan-2016](#Jan2016) | [Feb-2016](#Feb2016) |
| [Mar-2016](#Mar2016) | [Apr-2016](#Apr2016) | May-2016 |
| [Jun-2016](#Jun2016) | Jul-2016 | Aug-2016 |
| Sep-2016 | Oct-2016 | Nov-2016 |
| Dec-2016 | Jan-2017 | Feb-2017 |
| Mar-2017 | [Apr-2017](#Apr2017) | May-2017 |
| June-2017 | [Jul-2017](#Jul2017) | [Aug-2017](#Aug2017) |
| Sep-2017 | [Oct-2017](#Oct2017) |  |

# **Feature Updates**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Feature or Improvement** | **Detail** | **Image(s)** | **Update Month** |
| 1 | Calculated Tables | * Like a calculated column, created via DAX based on other tables and relationships in model * Can be used just like other tables in the model – relationships, metrics * Top use: simplify DAX metrics (like a Temp Table via Join, Union) * Second use: help optimize performance of a metric such as banding or ranking   \*Calculated tables are not supported in Excel 2016 | \*Hit Enter and table expression will be created (persisted in model) | Sep-2015 |
| 2 | Relationships View | * Drag/Drop to create relationships between tables   + Columns for relationships will be detected   + Type of relationship (may to one) will be detected * Delete relationships via Delete key * Rename tables and columns * Delete tables and columns |  | Sep-2015 |
| 3 | Data View | * Copy table contents to clipboard   + Copy whole table or just selected column * Useful for easy analysis of model data in Excel or other applications (Outlook, Word) |  | Sep-2015 |
| 4 | Field Summarization | * Additional Operations in Fields Pane (Report View)   + Median   + Variance, Std Dev * Defaul Summarization   + Customize default summarization for any field in model |  | Sep-2015 |
| 5 | Semi-Select for DAX formulas in Data View | * When authoring in Table view you can click a column to include it in formula (rather than type) |  | Oct-2015 |
| 6 | Basic Time Intelligence | * By dragging a date column into the axis, PBI Desktop creates hierarchy Year, Quarter, Month, Day by default * Can use drill down mode and drill up/down all buttons * Can toggle back to just the date column via the dropdown |  | Nov-2015 |
| 7 | Relationships View | * Zooming Slider * Fit Zoom to Screen * Reset Layout button * Ability to Zoom in using Ctrl + Mouse selection | Zoom in and out at bottom right right of relationship view  Can return to default layout  Highlight rectangle and zoom in on only one area of the model | Dec-2015 |
| 8 | Suggested Relationships | * When trying to create visuals involving tables without relationships * Relationships can be created automatically from error window |  | Dec-2015 |
| 9 | Enhanced Hierarchy Support | * User can now specify levels within hierarchy to add to visual * Previously ‘all or nothing’ of hierarchy in visual |  | Jan-2016 |
| 10 | Define hierarchies | * Can define hierarchies in fields pane (report view) * Use hierarchies in visuals (drill down/updat * Right-click a field name, New Hierarchy * Can now right-click a different field and ‘add to the hierarchy’ * Can rename hierarchy | Adding a hierarchy to a visual will default to top level of hierarchy (can drill down)  In the future the hierarchy context (via concatenation) will be included in PBI desktop defined hierarchies | Feb-2016 |
| 11 | Performance improvmenet | * Faster to rename tables and columns in data view and report view |  | Feb-2016 |
| 12 | Change datatype of a column in DQ mode | * Modeling tab and select data column from the Fields Pane |  | Mar-2016 |
| 13 | Assume Ref Integrity on relationships in DQ mode | * Applies to imported and created relationships * Only enabled when connecting in DQ mode * Enables more efficient queries | 1. Home Tab 2. Manage Relationships 3. Select Relationship 4. Edit     Allows inner join queries to be sent to database rather than outer join queries  From column is never null and for every value of from column there is a corresponding value in To column | Mar-2016 |
| 14 | Modeling operations not blocked during visual refresh | * Performance improvement of authoring experience |  | Apr-2016 |
| 15 | Time intelligence functions with built-in date hierarchy fields | * Apply standard DAX time intelligence metrics for date hierarchy fields |  | Apr-2016 |
| 16 | Data model synonyms | * Enable use of Q&A on top of model by providing synonyms for different metrics and columns |  | Apr-2016 |
| 17 | Row Level Security | * Define roles and security filters for those role within the PBIX file * Assign members to the given Role in the PBI service * Available via the Modeling tab in ribbon |  | June-2016 |
| 18 | Q & A in Spanish | * Relationship view (Model Diagram window) |  | Apr-2017 |
| 19 | Bidirectional crossfiltering for DirectQuery models is now GA |  |  | Jul-2017 |
| 20 | New Quick Measures | Star Rating and Concatenated list of values |  | Jul-2017 |
| 21 | What if parameters | Currently limited to decimal number, fixed decimal number, and whole number | Can specify min, max, increment, and default value via UI  Creates a table with a single column via GENERATESERIES() DAX function  Creates a measure with the SELECTEDVALUE() DAX function | Aug-2017 |
| 22 | Scatter Chart Analytics | Symmetry Shading  Ratio Line | Helpful to understand which measure (X axis or Y axis) does a point favor | Aug-2017 |
| 23 | Quick Measure: Weighted Average |  |  | Aug-2017 |
| 24 | Quick Measures for SSAS Live Connections |  | Might see a different list of available quick measures depending on which version of SSAS you’re connected to | Oct-2017 |
| 25 | New Quick Measure: Sales from new customers quick measure |  |  | Oct-2017 |
| 26 | Cell-level formatting for multidimensional SSAS models |  | Cell level formatting will now flow through to Power BI tables, matrices, single value cards | Oct-2017 |