Power BI Desktop: New Data Connectivity Features

# **Summary**

The purpose of this document is to serve as supporting reference to new data connectivity 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 modeling, transformations, report authoring and general Power BI features are outside the scope of this document.
* This document will be updated with future Power BI data connectivity updates (e.g. October 2016 Update) and may be enhanced with further details and examples.
  + As of 10/9/16, this document only identifies new data connectivity features and improvements since the September 2015 update.

# **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](#May2016) |
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| [Sep-2016](#Sep2016) |  |  |

# **Feature Updates**

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| --- | --- | --- | --- | --- |
| **#** | **Feature/Improvement** | **Detail** | **Image** | **Update Month** |
| 1 | On-Prem Spark distributions | * Get Data – Other   + Connect * URL of Spark Server and Protocal (Standard or HTTP) |  | Sep-2015 |
| 2 | SharePoint lists from non-English sites | * Improvement of existing SharePoint list connector * Users can get data from any SP list as long as SharePoint 2013 or newer regardless of site language * SP 2010 and earlier sites still limited to English only |  | Sep-2015 |
| 3 | MS Exchange connector | * Now allowing connections to multiple mailboxes * Could specify email address and credentials; could combine data from multiple Exchange inboxes |  | Sep-2015 |
| 4 | Excel Connector | * Automatic Column Type detections when importing.XLS files * Previously had column type detection for XLSX (Excel 07+) only |  | Sep-2015 |
| 5 | Related Tables option when connecting to database sources | * Similar feature available in Power Pivot for Excel * Tables with relationships defined in SSAS or via PK/FK in relational SQL Server * Feature supported in:   + SQL Server   + SQL Azure   + Oracle   + DB2   + MySQL   + Postrgres   + Teradata |  | Sep-2015 |
| 6 | Enhanced Active Directory connector credentials | * Allows alternate Windows credentials * Can impersonate now when writing queries against AD |  | Sep-2015 |
| 7 | Improved function invocation experience when using functions against a source | * Will be prompted for all parameters needed for query * Previously had to go back and specify function parameters |  | Sep-2015 |
| 8 | Import Excel Workbook Contents not supports external connections to SSAS Tabular models | * Converted to AS live connections in PBI desktop |  | Sep-2015 |
| 9 | New Delete All option in Data Source Settings dialog | * File – Options and Settings * Data Source Settings |  | Sep-2015 |
| 10 | Option to Enable Relationship Import during Refresh Operations | * PBI Desktop automatically creates relationships in local data model * File – Options * Current File – Data Load * By default this is turned off now so changes to underlying data source do not impact local data model |  | Sep-2015 |
| 11 | Azure DocumentDB connector | * NoSQL DocumentDB service designed for JSON and JavaScript * Made for Apps that run in the cloud * Provide URL * Optional – Database * Optional – Collection * Optional – SQL Statement * PBI will find all tables and expose them to Query Editor, Model and Reporting |  | Oct-2015 |
| 12 | Mailchimp connector | * New connector * Has been available as content pack in PBI Service * Can now benefit from data preparation features in PBI Desktop * Other - MailChimp |  | Oct-2015 |
| 13 | DirectQuery for SQL Server and Azure SQL DB (Preview) | * Users can pick between loading data to PBI Desktop or use direct query to query remote sources * Will save time waiting for data, save memory/on your local machine * Load or Edit after selecting tables * Selecting Direct Query shows the ‘Create Connections’ – much faster as you’re not loading/moving any data * Visualization commands will be converted into SQL against data source * In DQ mode there’s no Data View (no cache) * No New Measure or Calc columns as of Oct Update * Can still use some transforms in QE such as filter rows or remove columns or add derived columns (all in DQ) |  | Oct-2015 |
| 14 | SSAS Multidimensional Support | * File – Options and settings – Options to enable * Direct Connection: Connected * Must have SQL Server 2012 SP1 CU4 or above * Will be adding support later for hierarchies, display folders, etc |  | Nov-2015 |
| 15 | SAP Hana | * Very important enterprise BI source * Analytic views and calculation views * Need to install SAP Hana ODBC driver on client from SAP marketplace * Supports Direct Query and Import Mode * After clicking load you get the ‘Import or Direct Query’ Connection Settings dialog box |  | Nov-2015 |
| 16 | R Script | * Get Data – Other * Specify the R script to execute against R server * Produces one or multiple tables   + Could perform additional transformations before loading if necessary |  | Nov-2015 |
| 17 | Direct Query for:  SQL Server  Azure SQL Database  Azure SQL Data Warehouse | * Not a preview feature now, Generally Available * Same experience for Azure SQL Data Warehouse * Improving publish experience using Direct Query   + Improvements to PBI Gateway allowing users of PBI Service to use DQ |  | Nov-2015 |
| 18 | Azure Data Lake | * Provide URL for Azure Data Lake store * Preview all tables, navigate, explore, transform |  | Nov-2015 |
| 19 | Marketo | * Have had content pack against Marketo before * Now use PBI desktop to create reports against source * In Other Categories o |  | Nov-2015 |
| 20 | SSAS Multidimensional Hierarchy Support | * Enhancing preview feature to support hierarchies   + Will need to have Preview Feature turned on for explore live * Just click Geography hierarchy and drill up/down buttons enabled * Full support for all drill down capabilities (drill all or drill down mode (specific leaf) |  | Dec-2015 |
| 21 | Stripe Connector | * Easily manage online payments for businesses * Connect to Stripe Account * Get Data – Other - Stripe |  | Dec-2015 |
| 22 | SmartSheet Connector | * Get Data – Other – Smartsheet * Smartsheet accounts * Workspaces, worksheets, reports, collaborators |  | Dec-2015 |
| 23 | ‘Enter Data’ | * Paste or enter data to create a table manually * Previously had to create table in Excel and import from Excel or use M or DAX * Sometimes need a very small static table to support report or model * Specify headers and name of table * Loads table into data model * Can also just Ctrl+C from external Excel workbook and Ctrl+V   + Load or Edit to perform additional transforms   + Modify source table and transforms just like any other data source table |  | Dec-2015 |
| 24 | Direct Query Improvements | * All data types of T-SQL and SAP Hana supported * Performance Improvements for Azure SQL and SQL Server |  | Dec-2015 |
| 25 | ODBC Connector | * User and System DSNs   + Select from list of DSNs   + Use any DSN from your machine   + Specify   + Could use ‘none’ option to fully specify connection string * Previously had to fully specify connection string |  | Dec-2015 |
| 26 | CSV Connector | * Ability to specify Column Delimiter in the Source dialog |  | Dec-2015 |
| 27 | Create measures in Direct Query mode | * Will be enabling other Modeling features in DQ mode over the next few months * Click ellipsis or right-click – New Measure * Some DAX measures are not recognized/enabled by default as they could be expensive on source system * Have option of enabling unrestricted measures in Options |  | Jan-2016 |
| 28 | GA support for SSAS Multidimensional Exploration Mode |  |  | Jan-2016 |
| 29 | Enhanced Hierarchies support | * Was previously all or nothing with hierarchies * Can now specify level(s) of hierarchies (for SSAS Multidim) |  | Jan-2016 |
| 30 | GA for SAP Hana connector | * Fully supported in PBI Desktop |  | Jan-2016 |
| 31 | Append Multiple Tables | * Previously had to append two tables at a time; multiple steps required for unioning many tables * Can now specify Three or More Tables to append all * Can also control order and append same table multiple times * Disable load for intermediate tables, only load final output |  | Jan-2016 |
| 32 | Refresh Data for Individual Tables (Report & Data Views) | * Previously, clicking Refresh on Home tab from Report view would refresh all tables (could be time consuming) * Just refresh single table |  | Jan-2016 |
| 33 | Option to disable data previews | * Background evaluation can sometimes consume CPU resources * File - Options – Data Load   + Allow data preview * Setting is scoped to the given file |  | Jan-2016 |
| 34 | DirectQuery support for Oracle and Teradata databases | * Preview feature for now for these * Must enable preview in PBI Desktop * Previously DQ sources are GA (SQL Server, SSAS, Azure) |  | Feb-2016 |
| 35 | DirectQuery support for Calculated Columns | * Last month was calc measures, now calc columns * Expect more improvements to DirectQuery soon |  | Feb-2016 |
| 36 | Support for publishing SSAS Live Reports | * Specify which gateway you want to use for the given report to hit the on-prem database * Previously, if you had multiple gateways the report didn’t know which one to use |  | Feb-2016 |
| 37 | JSON File Connector | * Specify the JSON file * Expand option in Query Editor to parse file * Any Rest API or URL that returns JSON file |  | Feb-2016 |
| 38 | SQL Sentry Connector | * Allows you to monitor performance of SQL Server (health, availability, disk, cpu, memory, etc) * Previously available as content pack * Can now build your own reports via PBI desktop |  | Feb-2016 |
| 39 | Support for jagged CSV files |  |  | Feb-2016 |
| 40 | Exchange Connector | * OAuth Support |  | Feb-2016 |
| 41 | SharePoint List Connector | * URL validation |  | Feb-2016 |
| 42 | DB Connectors | * Option to disable navigation columns in Query Previews | Can uncheck the relationships detection (default is checked) and load..much faster to load data without relationships | Feb-2016 |
| 43 | Web Connector | * Fine Grained Scoping of Credentials * Pick any level from hierarchy (not just URL or domain)   To manage privacy levels |  | Feb-2016 |
| 44 | Enter Data | * User Experience improvements   + Automatically detect heads |  | Feb-2016 |
| 45 | SAP HANA | * Single Sign-on with Windows Authentication (PBI Desktop only) |  | Feb-2016 |
| 46 | SAP HANA | * Support for Field Labels   + Will show up in navigator; supported in query |  | Feb-2016 |
| 47 | SAP BW Connector (Preview) | * Settings – Options – Global – Preview Features * SAP Business Warehouse connecotr * Required: SAP BW Client Tools installed on local machine |  | Mar-2016 |
| 48 | R Scripts Connector now Generally Available | * Under Get Data – Other * Required: R installed on local machine to run R scripts * Required: data source supports R |  | Mar-2016 |
| 49 | Command Timeout in the UX | * Under Advanced Options when connecting to database sources |  | Mar-2016 |
| 50 | Privacy Level Setting at Machine Level | * Can now specify the privacy level (public, Org, private) for each data source.   + Privacy sometimes required local transforms (slow) * Currently per file, per user setting – Current File - Privacy * New option: Always combine data according to privacy level settings for each source (whether current file privacy setting is enable disabled) |  | Mar-2016 |
| 51 | Direct Query for Oracle and Teradata now GA | * Preview for DQ to Oracle and TD in February; now has become GA * Support for DQ for Oracle and Teradata now in Enterprise Gateway |  | Mar-2016 |
| 52 | New Connectors | * SharePoint Folder * Webtrends * SparkPost * tyGraph |  | Apr-2016 |
| 53 | New ‘Online Services’ category in Get Data dialog | * Moving online services to separate tab reduces list of sources under Other * Other sources now:   + Web,   + SP List   + HDFS File   + Active Directory   + MS Exchange   + ODBC   + R   + Spark   + Blank Query |  | Apr-2016 |
| 54 | Direct Query vs Import Selection | * Specify DQ or Import mode in data source dialogs |  | Apr-2016 |
| 55 | New data connectors | * IBM Informix * comScore Digital Analytics * Troux * Planview Enterprise | * IBM Informix available via Database category in Get Data * comScore Digital Analytics available via Online Sources category * Troux available via Online Sources category * Planview Available via Online Sources category | May-2016 |
| 56 | Improved DB2 Connector | * Now have the choice to use the Microsoft driver for IBM DB2 which is automatically included in the PBI Desktop installation |  | May-2016 |
| 57 | Data Source Settings Enhancements | * Can now modify the location of a data source for all queries using that data source within a PBIX file.   + Eliminates need to update data source for each query * Now a Current File scope in Data Soruce Settings |  | May-2016 |
| 58 | Improved relational database connectors with Display Schema information | * Available as an Advanced Option in all database connectors |  | May-2016 |
| 59 | ‘Save As’ a Power Bi Template | * File – Save As dialog to create PBIT file   + Stores only the definitions of queries, model, parameters and visualizations not the data |  | May-2016 |
| 60 | Azure Enterprise Data Connector | * Retrieve info about Azure accounts |  | June-2016 |
| 61 | Enhanced SAP BW and HANA connectors | * Multi-Select of values for variables/parameters * Support for Hierarchies in SAP BW |  | June-2016 |
| 62 | Enhanced OData connector | * Imports Open Type columns   + Available in Advanced Options |  | June-2016 |
| 63 | Enhanced MS Access DB Connector | * Select Related Tables button | Same behavior as other database sources.  Will select all tables that have a direct relationship with the table selected. | June-2016 |
| 64 | Amazon Redshift  Preview Feature | * Import and Direct Query supported | If enabled as preview feature, will see option under Get Data – Database | July-2016 |
| 65 | Impala  Preview Feature | * Preview * Connect to Impala cluster * Import only now   + Direct Query supported soon |  | July-2016 |
| 66 | Command Timeout option via the UX for Web connection | * Eliminates the need to customize the M query * Available in Advanced Mode for Web connector |  | July-2016 |
| 67 | CSV/Text – Support for Fixed-Width delimited files | * Specify a list of positions to split by in the Table preview dialog (if fixed width)   + first column |  | July-2016 |
| 68 | SAP BW improvements | * Support for Netweaver driver * Ability to specify a language when connecting to an SAP BW server * Error messages now localized to the PBIX install language | Need to ensure this driver is configured in your machine in order to continue running existing reports, both via PBIX and PBI gateway | July-2016 |
| 69 | Impala DirectQuery Support | * Still in Preview but was import mode only last month |  | Aug-2016 |
| 70 | Snowflake Connector | * Available in preview feature * Snowflake is cloud-native data warehouse |  | Aug-2016 |
| 71 | GA of SAP BW connector | * Now GA, available without any preview switch |  | Aug-2016 |
| 72 | Improved Web connector | * Get Data – Web   + Paste URL * Previously had to select tables from a list * Don’t have to guess or use process of elimination to determine the table you want |  | Aug-2016 |
| 73 | Snowflake Connector DirectQuery Support |  |  | Sep-2016 |
| 74 | ProjectPlace Connector | * Online Services - Projectplace |  | Sep-2016 |
| 75 | Oracle Connector -Navigated Previews | * Significant performance improvement for previewing tables when connecting to Oracle databases. (30% or less of time previously) |  | Sep-2016 |
| 76 | OData Connector – Select Related Tables Option | * When connecting to OData V4 feeds, you can click Select Related Tables in the Navigator |  | Sep-2016 |
| 77 | SA BW and HANA Connector Improvements | * Enhancements to parameter input UX:  1. For single select parameters, can type in values and view member caption in dropdown list 2. For multi-select parameters, can use search box and view member capation |  | Sep-2016 |
| 78 | Web Connector – UX Support for HTTP Request Headers | * Get Data * Web * Advanced |  | Sep-2016 |