Power BI Real-Time Dashboard

Introduction

This chapter provides details about the process required to implement Real-Time Dashboards using the Power BI Preview feature of Office 365. It describes best practices for building a business intelligence (BI) environment by using a combination of Microsoft Power BI, Microsoft Office 365(O365), and on-premises data sources.

This chapter will help you understand designing and sharing a real-time dashboard. It will make you aware of its functionalities and benefits as well. It also provides you with information about how you can connect to various data sources to fetch your data and use the same for building your dashboards.

To start with, you should have the data, or Power BI reports that will help to build your dashboard in some data sources like Excel Workbook, SSAS, GitHub, etc. You should also have some basic knowledge on how to create Power BI reports, though it is not mandatory. It will help you to learn how to create Power BI reports and will help you to create real-time dashboards having tiles made of visualization (like charts, map, combo charts, graphs, etc.)

Power BI Preview

Microsoft Power BI dashboard helps you to stay up to date with the information that is important to you. Your dashboards have tiles that lead to the reports which you can explore on just a single click. You can bring all your relevant data together in one place by connecting to multiple datasets.

Reasons for Creating the Dashboards

- To see all the information needed to make decisions in one place and

one look.

- To increase efficiency and support the decisions based on the most important facts.
- To ensure all the colleague's views and use the same information.
- To help the business determine goals and strategies and monitor the health of a business.
- To allow you to identify and correct negative trends using metrics and trends that matter a lot for business.

When you first open Power BI Preview, you'll see:

- Navigation pane
- Dashboard with tiles
- Q&A question box
- Help and feedback buttons
- Dashboard title
- Home button
- Version

Navigation Pane

The three objects of Power BI Preview include dashboards, datasets, and reports. You can use the Navigation pane to explore them. You can have no data in dashboards and reports, but that is not useful until you have the data with you. So for creating dashboards, you need to have data.

Datasets

You need to have data for *dashboards*, and for getting that, you can use *datasets* to connect to various data sources. After gathering all your data in one place, you can start by creating reports or dashboards. You can even bring your already created reports using *datasets*.

In the navigation pane, you can find all the datasets that you have connected to present in the heading Datasets. Each dataset listed is only having a single data source. Let's say that you have an Excel sheet in OneDrive, your computer, or any of your on-premises datasets, Salesforce database, etc.

ONE dataset is useful in creating many reports, or you can say the same dataset is used many times in different reports. You can pin as many visualizations from your dataset to any number of the dashboard.

To connect to a Dataset, you can either click GetData from the top of Navigation Pane or Click on  next to Datasets.

In some cases,

- When Power BI Preview imports a copy of the dataset, then, in that case, the changes you make won't affect your original dataset since it is a copy of your dataset.
- When Power BI Preview connects to your dataset like if the workbook was imported from OneDrive for Business, then you can refresh your dataset with the latest data from the workbook on OneDrive.

Dashboards

A dashboard is a visualization tool that shows you the current status of metrics, graphs, charts, KPI's, etc. related to business on a single screen for an enterprise. It is created by the co-workers and shared with the concerned members in an organization to stay up to date. Dashboards consolidate tiles. Each tile contains visualization created from the underlying data in your datasets.

You can find your dashboard listed in Navigation Pane under Dashboards heading.

ONE dashboard can show visualizations from many different datasets, and the same goes for reports as well. After creating a dashboard, you can share it within your team as well.

You can even import your dashboards from other SAAS services with the

dataset like the Get Data popup for Salesforce has an option of getting dashboard and/or report to be created from your dataset.

Reports

The Power BI Preview report contains page(s) of visualizations. You can create reports from scratch using the PowerBI Preview itself, or you can also import them using datasets. Once you add a dataset, it automatically gets added under the reports heading in Navigation Pane, but only if your data is formatted properly, and it has visualization in Power View sheets and with shared dashboards. For example, if you are connecting to the Microsoft Excel workbook, which has the Power View sheets present in it, then the Power BI Preview will automatically create a new report as per the visualization present in those sheets. You can even create Reports based on the data you have using Excel tool-kit like Power Query (Discover and Connects to data), Power Pivot (Transform and models data), Power View (Create Visualization (charts & graphs))

You can find your reports in the navigation pane listed under the Reports heading. Each listed report has a page(s) of visualization. You have two ways to view as well as interact with reports. They are:

Reading View: There is no need to worry using this view as you cannot modify or update anything. All you can do is explore and browse the data and visualization in the report, and temporarily pin any of the visualizations you want in your dashboard. (The filters applied while interacting with your reports also won’t be saved, and neither the pinned tiles will be saved when you close and reopen Power BI Preview).

NOTE: To edit the report and save your changes, you have to open it in Editing View.

Editing View: As compared to Reading View, In editing View, you can look into your data by creating new visualizations, changing visualization type, adding and deleting visualizations, adding and removing fields, and adding pages from the report.

NOTE: To edit a report, you must be the owner of the report

NOTE: If a dashboard has been shared with you, then you won't be able to see the report in the navigation pane. You will be able to open the report only if the report owner pinned that particular tile from the reports or otherwise if the owner created from the Q&A, then the Q&A page opens.

ONE report can be used in multiple dashboards. Tiles selected from the different reports can appear on the same dashboard. ONE report can be created from only one dataset. There is an *exception* to this - you can use Power BI Designer, which is capable of combining more than one dataset, to build a report. There is also an option in GetData 'Power BI Designer File' to import a copy of it and build your dashboard.

Dashboard Tiles

Dashboards are made up of tiles containing visualization. They are created either in report Editing View or Q&A. The owner of the report pins the tiles that appear on a dashboard.

You have now created the dashboard.

Benefits

- Shows the holistic summary view for all the metrics in the current fiscal year.
- Real-time status of Product Launches launched and Hot-fix information.
- Single view to show everything that's needed for the business.

Information on Dashboard

Product Launches: The Product Launches metrics show the Standard Product Launches count and the Non-Standard Product Launches, count.

Quality: The Quality metrics will show the data for both Production defects and Hot-Fixes. The Fields shown under this category are below:

- No. of Production Defects
- Standard Defects & Non-Standard Defects

- Bad Hot-Fixes & Good Hot-Fixes

Drill-down views: Drilldown views for each of the categories are shown in the report.

- Product Launches Drilldown: You can show the Product Launches in different dimensions. Product Launches against Business Groups, Product launches against Launch lead, and Product Launches against Functional Areas.
- Quality Drilldown: You are showing the quality metrics in multiple dimensions based on the need. You can show the defects against the functional Area, Defects against launch type, and Defects against the environment—Hot-Fixes against good or Bad Hot-fixes, hotfixes.

Q&A Question Box

In Power BI, the Q&A uses Natural Language as a query being able to answer a question in the form of charts, graphs, metrics, etc. in the browser within a second. The visualizations are all dynamic and interactive. Any change in your query will automatically alter the results accordingly. This helps in creating the reports or getting calculations while giving presentations instantly. You can modify the reports as per your requirement.

You can add content to your dashboards only in the form of tiles. Q&A helps them who are new to create Power View reports from the basic level. When you write a query in the natural language, it looks for an answer in the dataset(s) connected to the dashboard.

When you start typing your question, you are directed to the Q&A page. As you type your question, it gives you the options to ask the right question with the help of IntelliSense, suggestions, and finds the best answer in the form of visualization. Once you have the expected visualization, you can pin it to your dashboard.

And Work Request according to the State, which gives us information on How many work Request is closed or pending, which is very useful for business.

Help and Feedback Buttons

The icons in the top right corner contain a Download menu containing the direct link for downloading the resources, getting help for any problem that you face, and providing feedback to the Power BI team. It also contains the support link for learning all about Power BI preview in a very detailed manner.

Dashboard Title

It's difficult to figure out which dashboard is active, always. The dashboard title appears in the following places:

- Report Editing View
- Dashboard view page
- Q&A page
- Report Reading View and when you open a dataset.

This is the way to know which dashboard you're pinning your visualization into.

Home Button

To return to your dashboard, click on the home button that appears on the top left corner of all screens in Power BI Preview. You may also return to the navigation pane using this button.

The Retail Analysis Sample Dashboard

The first time you visit https://app.powerbi.com to open Power BI Preview, you will find a sample dashboard, i.e., ***Retail Analysis Sample***. Unless you manually remove this sample, it will always be there. You will not see any reports under Reports heading even if the sample dashboard because of the earlier mentioned reason that it is shared with you. You will only be able to view the report through tiles if the owner pinned the visualization from the report. You can explore and learn from this sample until you remove it.

Functionalities of Power BI Preview

Delete a Dashboard

If you Delete or remove a dashboard, that does not mean that any reports or datasets that are associated with it will also be deleted. You have to delete them separately.

- If you have created the dashboard on your own, then only you will be able to delete it. Once you have shared it with someone else, then deleting from your Power BI Preview won't delete or remove from their Power BI Preview.
- You can remove only those dashboard which is shared with you. This doesn't mean that the same will be removed from other people's Power BI Preview.

How to Remove a Dashboard

1. Navigate to the navigation pane, then right-click on the dashboard to delete it.
2. Click **Yes**. The dashboard will be removed.

You can identify a shared dashboard with you, by lock icon prefixed to the dashboard name. To delete a dashboard, click **Delete,** following the same steps as removing.

Create an Empty Dashboard

1. Click the plus sign that appears against the **Dashboards** heading on the navigation pane.
2. Give a name for your new dashboard.

Your dashboard will be blank until you get some data. You can get data from either of these options mentioned below:

- Pin the answer(Visualization) from Q&A
- Pin visualization from Reports

How to Pin Visualizations from Q&A

In the question box type, what you want to know about data. For example:

To make the metric ‘Bug Count’ display on your dashboard as a tile, click on the Pin Icon. When you click it. The above-shown visualization will be displayed as a tile in your newly created dashboard.

How to Pin Visualizations from Report

1. Open the report from which you want to pin the visualization from in the Navigation Pane.
2. When you open the report, it opens in the reading view. You can pin a tile from both the Reading View and Editing View. In the reading view, you can either interact with the visualization and filter but cannot edit the report.
3. The report you opened has one or more visualization. Click the visualization you want to pin and click the pin icon. A Success message will be shown in the top right corner that tells you the visualization has been added to your dashboard.
4. Click the Home button to see the changes to your dashboard.
5. Now you can customize (rename, resize and remove) the tile in your dashboard.

Customizing Your Tile

Rename the tile: To edit the tile title, click the pencil icon by hovering over a dashboard tile.

Move the tile: Hold and drag your tile to a new location on the dashboard.

Resize the tile: The tiles can be re-sized to small, medium, or large. To resize the tile, click and drag the arrow in the bottom right corner.

Delete the tile: Click this icon to delete the tile. Deleting a tile does not delete the related report or dataset.

Share a Power BI Dashboard

Now you have the dashboard ready. As I mentioned earlier, you can share the reports amongst co-workers. Let’s see the steps on how to do it.

You can share the Dashboards with your colleagues by simply clicking the Share icon and specifying their email addresses.

1. Click the Share Icon after you open the dashboard that you want to share.
2. When you click on the **Share** icon, a dialog box appears. Click on **Invite** and enter the co-worker's email ID and the description of the dashboard on the box below. If you want your co-workers to share your dashboards with others, then check the option. **Allow recipients to share your dashboard.** Click **Share.** Your co-workers will receive an email invitation with a link to the shared dashboard.
3. To see with whom you have shared the dashboard, click **Shared With**.
4. If you want to unshare the dashboard with your co-worker, click on **Shared With** and then Click on **Cancel Invite** corresponding to the email address.

Power BI is a very user-friendly BI tool that helps us to create, share, and access reports just by using a browser.

Various Data Sources

The GetData button helps you to get your own data into the dashboard, which has various data sources available to connect to get your data and build powerful dashboards for your business.

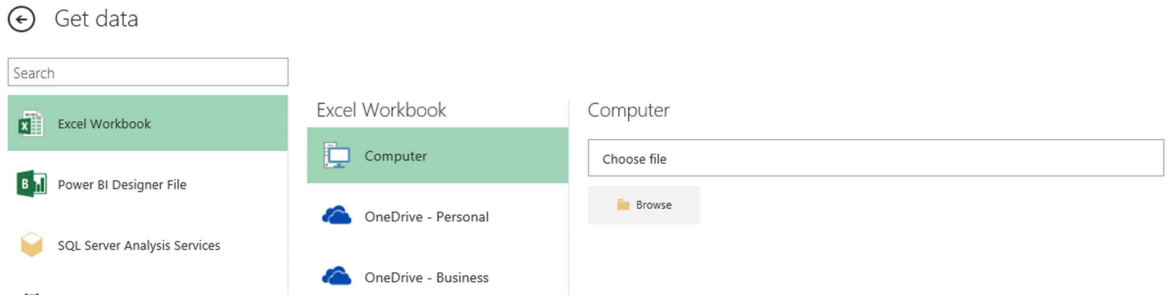
Various data sources are Excel Workbook, PowerBI Designer File, SQL Server Analysis Service, Microsoft Dynamics CRM Online. Customers can also connect to their data in SAAS services like Salesforce, Zendesk, Marketo, SendGrid, and GitHub and Microsoft Organizational Content like Microsoft: IT New Technology Adoption, Windows User Voice, Digital Crimes Unit and Peoples View.

Starting with an Excel Workbook

First, you have to find the data to visualize. Select the Get Data option present on the left side of the screen. Now you will be able to view all the

data sources.

Click on Connect to find the excel workbook by clicking on browse. When you select One Drive (Cloud Service), then you can update the changes automatically by configuring the **Data Management Gateway.**



Select the workbook that you need and click the Connect button. When you are done connecting, you are ready to start.

You can create visualizations like charts, graphs, a Filled Map, TreeMap, Funnel, Gauge, Cards, Combo Charts, etc. You can explore and learn from your own.

Now select the visualization you want

Once the dashboard is saved, to see the workbook that you uploaded under the Dashboard heading, you can return to the main Power BI Dashboard pane.

The Power BI Q&A and connection to your workbook you uploaded into your dashboard will appear when your dashboard opens.

Power BI Designer File

This application is a combination of Power Query, Power View, and Power Pivot in a single application, which allows you to build your Power BI report offline. You can later upload it to Power BI Preview to build powerful dashboards. It’s just another option for people who do not have Microsoft Office 2013 Add-Ins for Power BI.

You can click on the ‘Power BI Designer Preview’ option in Download to get the application.

Once you are done with the installation load your data in Power BI Designer, click on Get Data Ribbon (top left corner) to get your data using Power Query and load it.

The extension for the output file is **PBIX**.

Limitations of Microsoft Office 2013 Power BI Add-Ins

You will not get complete control over the data model. You can add relationships only. You will not have access to add any synonyms in the Power BI Designer.

You cannot Sign-In in Power Query. If you already have a data model present in your MS Excel, then you cannot use the same to create reports.

Features will be added to overcome a limitation in the future. You may even have an option to create a dashboard offline.

SQL Server Analysis Service (SSAS)

There are two ways to connect to SQL Server Analysis Services tabular model data:

- Go to Get data, Click on SQL Server Analysis Services. Click on Connect. Select the server and get started.
- Connect to an Excel workbook that already connects to an Analysis Services server. But if your reports are in a tabular data model, then only you will be able to explore and edit in Power BI Preview.

Download the App, Install it, and configured it by an administrator.

To download and install the latest Analysis Services Connector, you can click on it from the DOWNLOAD menu.

Salesforce, Zendesk, Marketo, SendGrid, and GitHub

These are applications from which you can bring your data in Power BI. After connecting to your accounts (by providing credentials) in each of those applications, you will be able to import a variety of data to explore and monitor in your Power BI dashboards.

Once you connect to these data sources, you have your data; then, you can create a visualization, pin it to your dashboards and share it with your co-workers.

Refresh your Data

Most of the features of the Power BI was either already available or could be achieved by some or other means. But what was impossible until now was to have an excel workbook in Office 365 that updates automatically and provides you with the latest data. It matters a lot since data is changing, and you want the data to be up to date for your reports. **Data Management Gateway** does this for you.

The **Data Management Gateway** is a Windows service, and it needs Windows 7 or above for its installation. You can run multiple gateways within your organization. The gateways can help us in the following manners:

- With the installation done, the gateways get connected to a Power BI service (existing in "the cloud") and receive the request for a refresh.
- On getting a request, the gateways act as an intermediary between the cloud services and on-premises data.

Most of the configuration described above exists in the Power BI Admin Centre "in the cloud." So all the activity relating to the gateway machine can be monitored using "Resource Monitor" or "Task Manager."

There are two ways to refresh your data, i.e., **Schedule Refresh** and **Refresh now**. This feature is only available for Excel workbooks where power query is used to connect data from sources, such as SQL (Basic), SQL Azure (Basic), Blob store (Account Key), Table store(Account Key), HD Insight(Account Key), Azure Marketplace (Marketplace Key), Facebook (OAuth), Salesforce (OAuth) & Blank Query(N/A). In Brackets, you have the Authentication Method, which will come into use as you proceed.

Important: Apart from data sources, other restrictions might impact on Schedule Refresh option. They are:

- You have to build your queries by selecting the tables or views UI. It

means you cannot enter the SQL query manually to execute.

- You have to connect to your data using Power Query. It means if you cannot connect directly from Power pivot for your data.
- When you have your data in power query, then you got to select the ‘Load to Data Model’ option. Otherwise, if you have loaded the data to the datasheet, then you cannot use the Schedule Refresh option.

Steps to Refresh Schedule

- Select a Dataset and Click on Open Menu.
- Now you can click on Refresh Now to refresh your data right away. Or, you can click Schedule Refresh. When you do so, you will be directed to the page where you can schedule your refresh to keep your data up to date.
- Then you have to Edit Credentials to apply the changes. Choose the **Authentication Method** as I mentioned above and enter your Credentials and click on Apply, and your data will be updated as per schedule.

This is just a start in Power BI; there is still much more to come. So keep on exploring and stay up to date with the information that matters to you most.