

# **POWER BI - REFERENCE GUIDE**

# 1. INTRODUCTION

## Microsoft Power BI

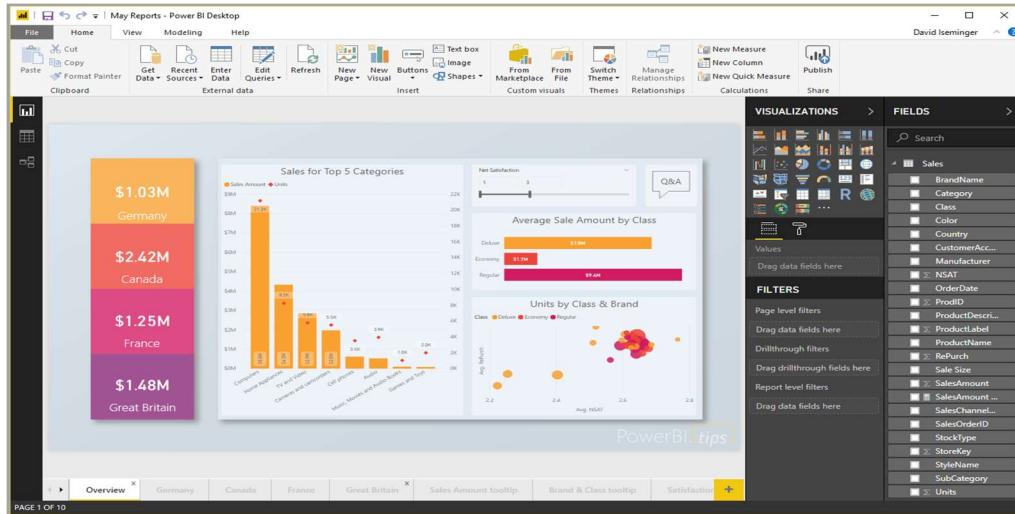


**Power BI** is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, interactive insights and aids in business intelligence process. Your data might be an Excel spreadsheet, or a collection of cloud-based and on-premises hybrid data warehouses. Power BI lets you easily connect to your data sources, visualize, and discover what's important, and share that with anyone or everyone you want.

### 1.1. Parts of Power BI Suite

Power BI consists of several elements that all work together, starting with these three basics:

## Power BI Desktop



*Power BI Desktop* is a free application you install on your local computer that lets you connect to, transform, and visualize your data. With Power BI Desktop, you can connect to multiple different sources of data, and combine them (often called *modelling*) into a data model and build visuals on a free tier.

## Power BI Service

The screenshot shows the Power BI Service home page. On the left is a navigation sidebar with options like Home, Create, Browse, Data hub, Metrics, Apps, Deployment pipelines, Learn, Workspaces, and Docs Support. The main area displays a "Recent" tab with a list of items. The columns in the list are Name, Type, Opened, Location, Endorser, and Sensitivity. The items listed are: Docs Support (Workspace, now, Workspaces, —, —), Analytics (Report, 5 minutes ago, Docs Support, —, General), My workspace (Workspace, an hour ago, Workspaces, —, —), Events (Workspace, an hour ago, Workspaces, —, —), Aquent vendor team – DevRel C+L (Workspace, 6 days ago, Workspaces, —, —), TSA Dashboard (Dashboard, 6 days ago, TSA Dashboa..., —, Confidential...), TSA Dashboards (Workspace, 6 days ago, Workspaces, —, —), and Collaboration Reports (Workspace, 6 days ago, Workspaces, —, —).

Power BI service is a secure Microsoft hosted cloud service that lets users view dashboards, reports, and Power BI apps — a type of content that combines related dashboards and reports — using a web browser or via mobile apps for Windows, iOS, and Android.

## Power BI Mobile App



Power BI offers a set of mobile apps for iOS, Android, and Windows mobile devices. In the mobile apps, you connect to and interact with your cloud and on-premises data.

## 1.2. Licensing and Considerations

Each user of the Power BI service has either a **Free** license, a **Pro** license, or a **Premium Per User** license.

License type	Capabilities when workspace is in shared capacity	Additional capabilities when workspace is in Premium capacity
Power BI (free)	Access to content they create for themselves.	Consume content shared with them by Pro or PPU users
Power BI Pro	Publish content to other workspaces, share dashboards, subscribe to dashboards and reports, share with users who have a Pro license	Distribute content to users who have free or PPU licenses
Power BI Premium Per User (PPU)	Publish content to other workspaces, share dashboards, subscribe to dashboards and reports, share with <i>users who have a PPU license</i>	Distribute content to users who have free and Pro licenses

For more details on the capabilities and limitations of each type of licensing please refer the below Microsoft Link for details.

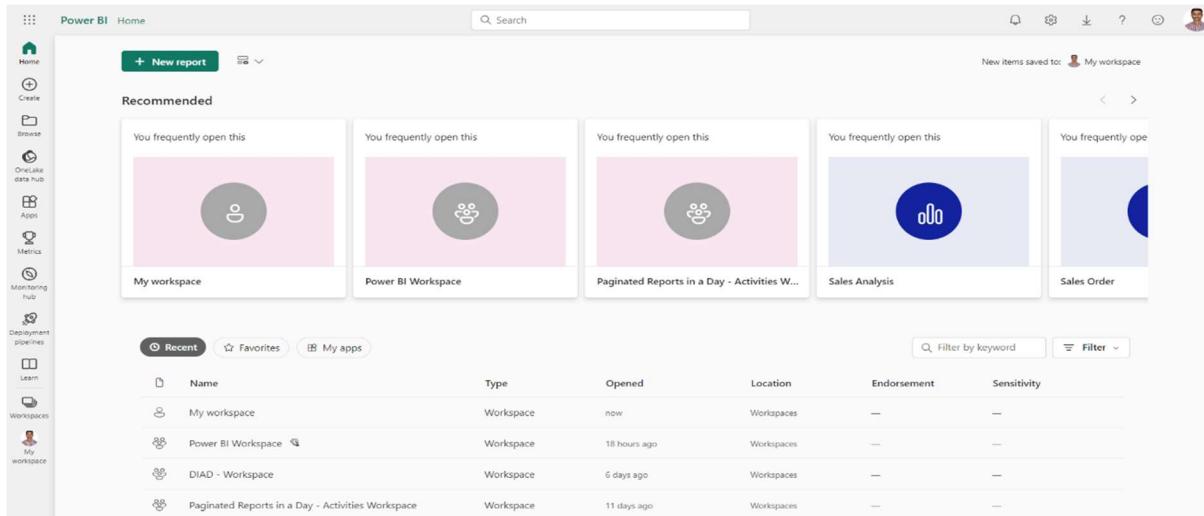
<https://powerbi.microsoft.com/en-us/pricing/>

<https://learn.microsoft.com/en-us/power-bi/fundamentals/service-features-license-type>

## 2.Power BI Service- Cloud Based

### 2.1. Creating Workspaces

Login to <https://app.powerbi.com/> and sign in with the credentials provided by your organisation.



The screenshot shows the Power BI Home page. On the left, there's a sidebar with various navigation options like Home, Create, Browse, etc. The main area has a 'Recommended' section with five cards: 'My workspace', 'Power BI Workspace', 'Paginated Reports in a Day - Activities W...', 'Sales Analysis', and 'Sales Order'. Below this is a 'Recent' section showing four workspaces: 'My workspace' (opened now), 'Power BI Workspace' (18 hours ago), 'DIAD - Workspace' (6 days ago), and 'Paginated Reports in a Day - Activities Workspace' (11 days ago). At the bottom, there's a table with columns: Name, Type, Opened, Location, Endorsement, and Sensitivity.

Name	Type	Opened	Location	Endorsement	Sensitivity
My workspace	Workspace	now	Workspaces	—	—
Power BI Workspace	Workspace	18 hours ago	Workspaces	—	—
DIAD - Workspace	Workspace	6 days ago	Workspaces	—	—
Paginated Reports in a Day - Activities Workspace	Workspace	11 days ago	Workspaces	—	—

- Go to the Workspaces section and Click on **+ New Workspace** to enter the workspace configuration window.
- Provide a desired name for the Workspace, Assign the Workspace to a Domain if there exists any on the same.
- Provide contact list to the applicable persons who handles the Power BI Workspace.
- Expand the Advanced section to access the critical settings.
- Under **License Mode** select **Pro** if the Dataset belongs to lesser size and caters to set of users and accessing the basic features.
- **Premium** if the dataset is large, caters to large set of users, accessing the source control feature such as Deployment Pipelines and other settings.
- **Premium Capacity** if the workspace will be hosted on a premium capacity.
- Under the Default format section ensure to enable Large Dataset Storage Format if the dataset size keeps increasing.
- Enable Template Apps if Apps are developed for sharing outside your organization. A template app workspace will be created for developing and releasing the app.
- Click **Apply** once all the configurations are followed as per the steps mentioned above and refer the snapshots provided below.

### Create a workspace

**Name \***  
Power BI Reports

**Available**

**Description**  
Repository to store Power BI Reports, Datasets, Dashboards , Dataflows.

**Domain (preview) ⚡**  
Assign to a domain (optional)

[Learn more about workspace settings](#)

**Workspace image**  
 


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**Advanced ^**

**Contact list \* ⚡**  
 subbiah.m (Owner)  Enter users and groups

### Create a workspace

**Premium per-user**  
Select Premium per-user to collaborate using Power BI Premium features, including paginated reports, dataflows, and datamarts. To collaborate and share content in a Premium per-user workspace, users need Premium per-user licenses. [Learn more](#)

**Premium capacity**  
Select premium capacity if the workspace will be hosted in a premium capacity. When you share, collaborate on, and distribute Power BI and Microsoft Fabric content, users in the viewer role can access this content without needing a Pro or Premium per-user license. [Learn more](#)

**Embedded ⚡**  
Select embedded if the workspace will be hosted in an Azure embedded capacity. ISVs and developers use Power BI Embedded to embed visuals and analytics in their applications. [Learn more](#)

**Fabric capacity**  
Select Fabric capacity if the workspace will be hosted in a Microsoft Fabric capacity. With Fabric capacities, users can create Microsoft Fabric items and collaborate with others using Fabric features and experiences. Explore new capabilities in Power BI, Data Factory, Data Engineering, and Real-Time Analytics, among others. [Learn more](#)

**Default storage format**  
 Small dataset storage format  
 Large dataset storage format

[Learn more about dataset storage formats](#)

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Power BI

**Template apps**  
Template apps are developed for sharing outside your organization. A template app workspace will be created for developing and releasing the app. [Learn more about template apps](#)

Develop template apps

**Apply** **Cancel**

# Power BI Workspace Types.

## Free

Users with free licenses can use the Power BI service to connect to data and create reports and dashboards for their own use. They can't use the Power BI sharing or collaborating features with others or publish content to other people's workspaces.

## Pro

Power BI Pro is an individual per-user license that lets users create content, read and interact with content that others have published to the Power BI service. Users with this license type can share content and collaborate with other Power BI Pro users. Only Power BI Pro users can publish or share content with other Pro users or consume content that's created by other Pro users unless a Power BI Premium capacity hosts that content.

## Premium Per User

A PPU per-user license provides the license holder with all the capabilities of Power BI Pro plus access to most Premium capacity-based features. A Power BI PPU license unlocks access to a variety of features, capabilities, and types of content that are only available through Premium. Content created by a PPU licensed user can only be shared with other users that have a PPU license, *unless* that content is specifically put in a workspace hosted in Premium capacity.

## Premium Capacity

A capacity-based Premium license (often referred to as a Premium *subscription*) allows Pro or PPU users to create and save content in Premium capacity workspaces. They can then share that workspace with colleagues who have any license type. Only users with a Pro or PPU license can create and save content in Premium capacities, and only if their organization has purchased Premium capacity.

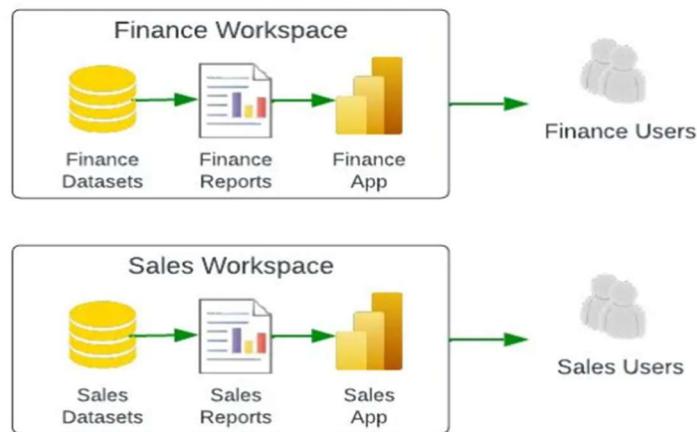
## Embedded

Power BI Embedded is a Microsoft-developed Azure consulting service, the user organization is empowered to share intelligent graphics, dashboards, and reports with their customers and employees. This in turn helps in deriving the most advantage from the organizational data.

# Workspace Management Strategies

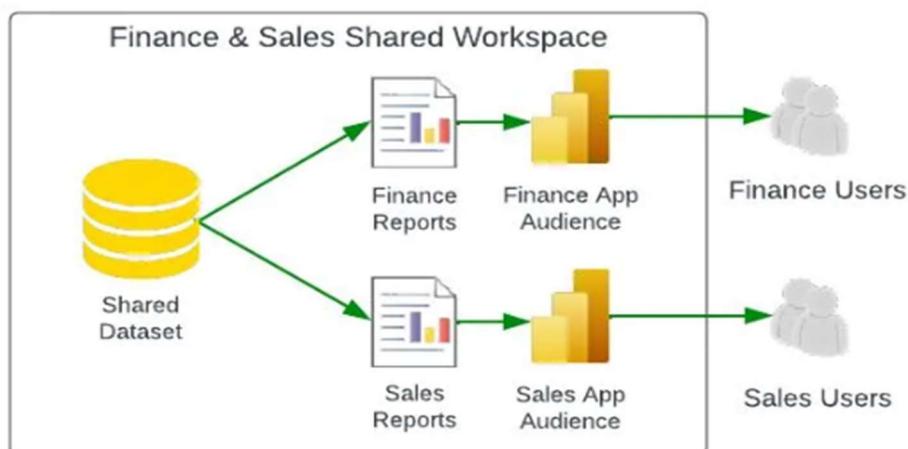
## Scenario 1- Multiple Workspaces for Various Audiences

The theme of this strategy is separating datasets and reports that are relevant to different user groups into their own workspaces.



The benefit of this strategy is managing access to reports and underlying datasets is easier because the content is already in separate workspaces. A potential drawback is that the Power BI admin team will have more workspaces to manage.

## Scenario 2- Shared Workspaces for Various Audiences



The benefit of this strategy is that there are less workspaces and less content for the Power BI admin team to manage. The drawback is because content is in a single workspace, you will need to be very careful with how user groups are provided access to the content relevant to them. The strategy is primarily recommended for organizations where the different user groups have overlapping data and can therefore decrease unnecessary redundancy.

## 2.2. Publishing Content to the Workspace.

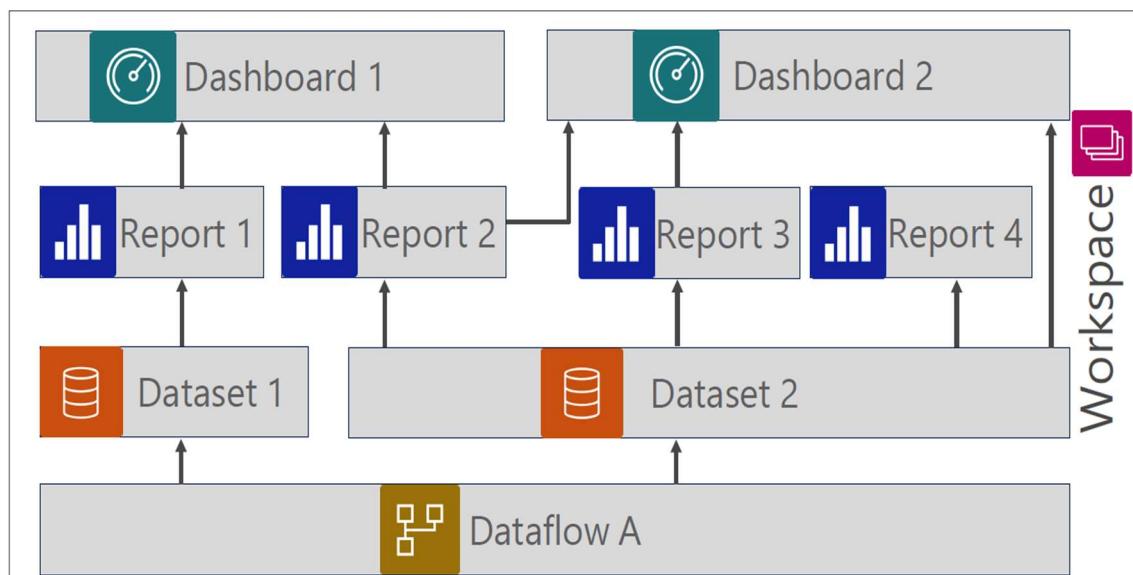
Click on the **Upload** Button in the workspace and select Report and browse for the respective Power BI file in the system and wait for it to publish in the workspace with the Report, Dataset, Dashboard.

The screenshot shows the Power BI Workspace interface. At the top, there are navigation buttons for '+ New', 'Upload', 'Create deployment pipeline', 'Create app', 'Manage access', and a search/filter bar. Below this is a table listing workspace objects:

Name	Type	Owner	Refreshed	Next refresh	Endorsement	Sensitivity	Included in app
BAL DC	Report	Power BI Workspace	5/6/23, 5:38:43 pm	—	—	—	<input type="checkbox"/> No
BAL DC	Dataset	Power BI Workspace	5/6/23, 5:38:43 pm	N/A	—	—	<input type="checkbox"/> No
BAL DC Power BI Dashboard.pbix	Dashboard	Power BI Workspace	—	—	—	—	<input type="checkbox"/> No
Ficosa IRRS Dashboard_1.1 (1)	Report	Power BI Workspace	5/6/23, 5:41:34 pm	—	—	—	<input type="checkbox"/> No
Ficosa IRRS Dashboard_1.1 (1)	Dataset	Power BI Workspace	5/6/23, 5:41:34 pm	N/A	—	—	<input type="checkbox"/> No
Ficosa IRRS Dashboard_1.1 (1).pbix	Dashboard	Power BI Workspace	—	—	—	—	<input type="checkbox"/> No

A tooltip 'Upload a .pbix, .rdl, or .xlsx file to your workspace' is visible over the 'Upload' button.

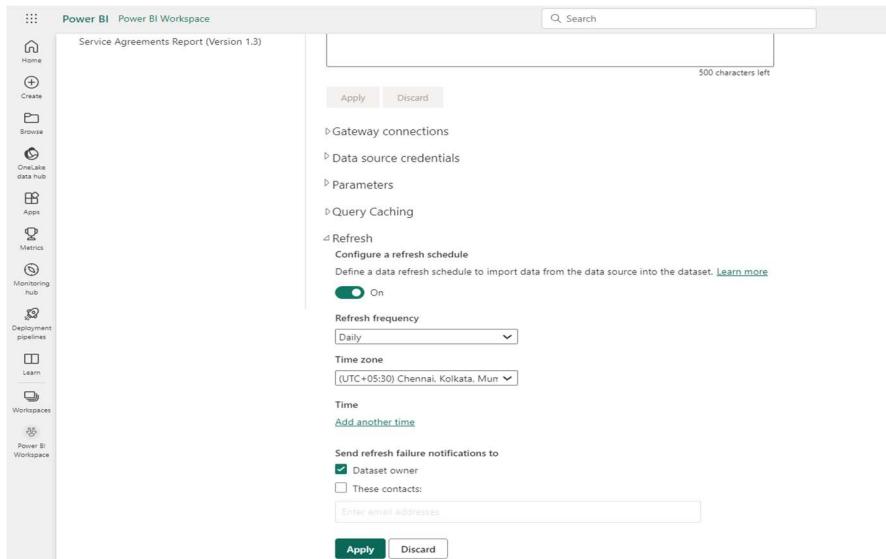
## Objects in the Power BI Service



## 2.3. Setting Incremental Refreshes in the PBI Service

Go to the Dataset of the Report intended and click on settings to access the Configuration panel.

Under Refresh section, Enable the Configure a Scheduled Refresh and set a suitable time zone for setting up the automated refresh schedule.



## 2.4. Providing Access to Intended Users to the PBI Workspace in PBI Service.

The screenshot shows the 'Power BI Workspace' management interface. The left sidebar has options like Home, Create, Browse, OneLake data hub, Apps, Metrics, Monitoring hub, and Deployment pipelines. The main area displays a table of workspace contents:

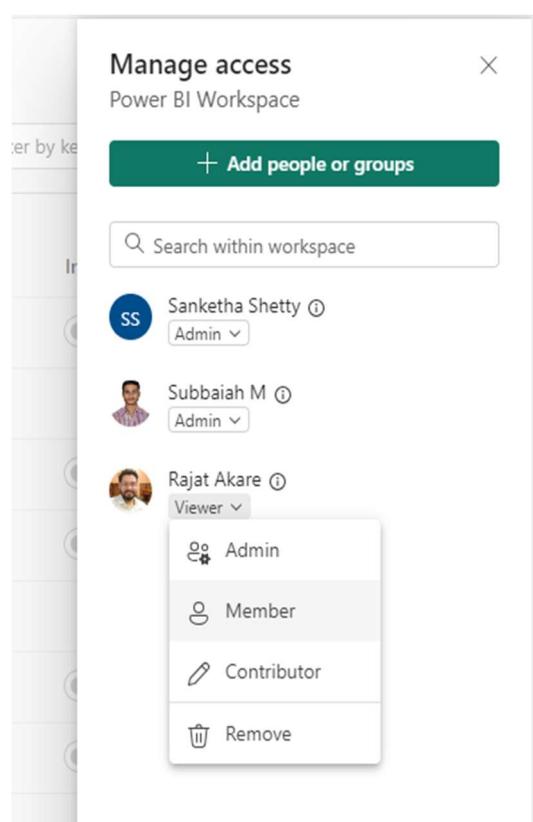
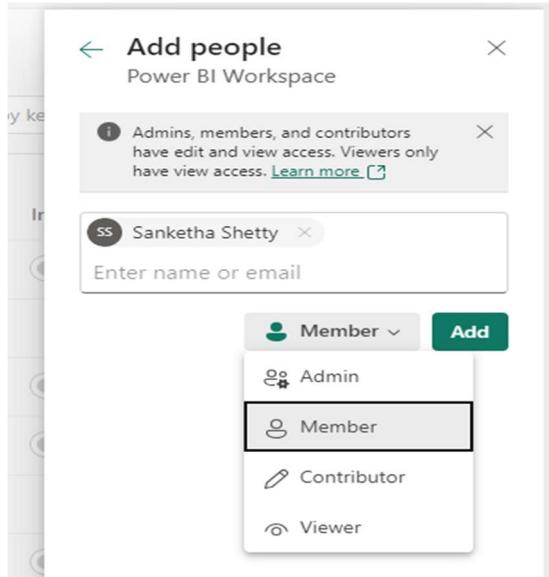
Name	Type	Owner	Refreshed	Next refresh	Endorsement	Sensitivity
BAL DC Power BI Dashboard	Report	Power BI Workspace	5/6/23, 5:38:43 pm	—	—	—
BAL DC Power BI Dashboard	Dataset	Power BI Workspace	5/6/23, 5:38:43 pm	N/A	—	—
BAL DC Power BI Dashboard.pbix	Dashboard	Power BI Workspace	—	—	—	—
Ficosa IRRS Dashboard_1.1 (1)	Report	Power BI Workspace	5/6/23, 5:41:34 pm	—	—	—
Ficosa IRRS Dashboard_1.1 (1)	Dataset	Power BI Workspace	5/6/23, 5:41:34 pm	N/A	—	—
Ficosa IRRS Dashboard_1.1 (1).pbix	Dashboard	Power BI Workspace	—	—	—	—

Go to the Workspace and click on Manage Access to open the configuration window.

### Note:

- The Users who are consuming the Reports must be granted **Viewer** Role.
- The Developer maintaining the Reports and administrative activities of the Workspace in the Power BI Service must be granted **Admin** Role.

Select the user and grant the appropriate role and click on add and Save.



## Roles Wise Detailed Information.

There are four roles for workspaces, and it's advised that you grant the minimum access necessary to collaborators. For consumers, skip workspace role assignment, and provide access through the app instead.

The four roles are listed below, in order of most permissive to least, along with select permissions. For full permissions, review the [Roles in workspaces documentation](#).

### Admin

- Update and delete the workspace
- Add or remove people, including other admins

### Member

- Add members or others with lower permissions
- Publish, unpublish, and change permissions for an app

### Contributor

- Create, edit, and delete content, such as reports, in the workspace
- Publish reports to the workspace

### Viewer

- View and interact with an item
- Read data that's stored in workspace dataflows

## 2.5. Enforcing Dynamic Row Level Security in Power BI Workspace.

Define the Roles structure and perform the relevant mapping between the Users and Role Table and check on the same.

**Edit relationship**

Select tables and columns that are related.

Users

User ID	First Name	Last name	Full Name	Email	Role ID	Designation	Reporting Ma
1	Abhijeet	Singh	Abhijeet Singh	abhijeet2@indigo.com	9.0	Sales Executive	Madhusudhar
2	Alex	Wilson	Alex Wilson	alex3@indigo.com	9.0	Sales Executive	Madhusudhar
3	Bill	Thomson	Bill Thomson	billthomas@indigo.com	9.0	Sales Executive	Madhusudhar

Roles

Role ID	Role Name
1.0	Sales Management
2.0	Head of Sales
3.0	Vice President

Cardinality      Cross filter direction

Many to many (\*:\*)      Both

Make this relationship active       Apply security filter in both directions

Go to the Modelling tab and define the DAX expression, filter condition for the Role based filtering of Report.

**Manage roles**

Roles

- IT Administrators
- Regional Director - North
- Users**
- Users - South

Tables

- Agency
- Booking
- Calendar
- Report Refresh
- Roles
- Users**

Table filter DAX expression

```
PATHCONTAINS(Users[Path],  
MAXX(  
FILTER(  
Users,  
[Email] = USERPRINCIPALNAME()  
,  
Users[User ID]  
)  
)
```

Filter the data that this role can see by entering a DAX filter expression that returns a True/False value. For example: [Entity ID] = "Value"

**Save**      **Cancel**

Validate the Roles created and ensure the rendering appears as intended.

The screenshot shows a Power BI Sales Dashboard. At the top, a yellow banner displays the message "Now viewing as: Users, Madhusudhan.x.Reddy@goidigo.in". A "Stop viewing" button is located in the top right corner. The dashboard features a chart titled "Current Month vs Last Month" comparing "Current Booked Value" (grey bars) and "Previous Booked Value" (blue bars) for months from May 22 to Jan 22. Below the chart is a table titled "Detailed Revenue Data" showing bookings for agents Abhijeet Singh across five months. A modal window titled "View as roles" is open, listing role options: "None", "Other user" (with "Madhusudhan.x.Reddy@goi" selected), "IT Administrators", "Regional Director - North", "Users" (selected), and "Users - South". Buttons for "OK" and "Cancel" are at the bottom of the modal. The background of the dashboard shows a bar chart and a donut chart related to flight types.

Manage Security of the model in the Power BI Service under the Dataset Level.

The screenshot shows the "Row-Level Security" section in the Power BI Service. On the left, a sidebar lists navigation options: Home, Create, Browse, OneLake data hub, Apps, Metrics, Monitoring hub, Deployment pipelines, Learn, Workspaces, and Power BI Workspace. The "Power BI Workspace" option is highlighted. The main area shows a list of roles: "IT Administrators (0)", "Regional Director - North (0)", "Users (0)" (which is selected and highlighted in grey), and "Users - South (0)". To the right, a "Members (0)" section is displayed, showing a search input field containing "Madhusudhan Reddy" and a placeholder "Enter email addresses". A green "Add" button is located below the input field.

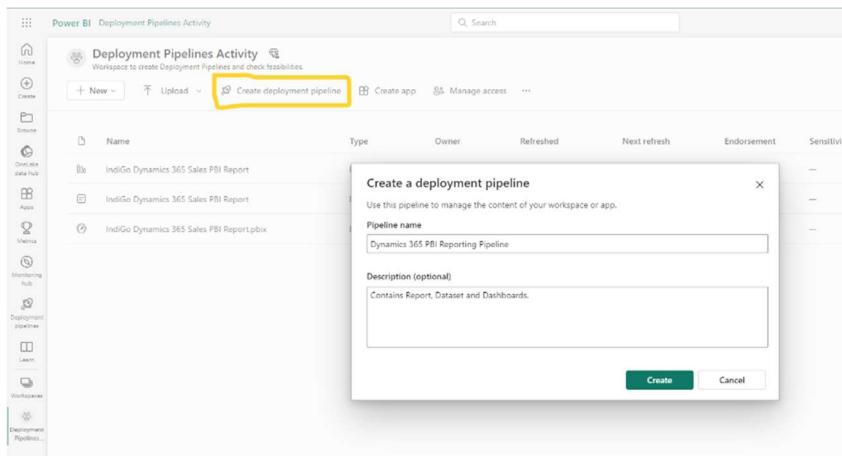
Add the users to the respective roles and validate on the rendering of the report.

## 2.6. Deployment Pipeline (Source Control) in Power BI

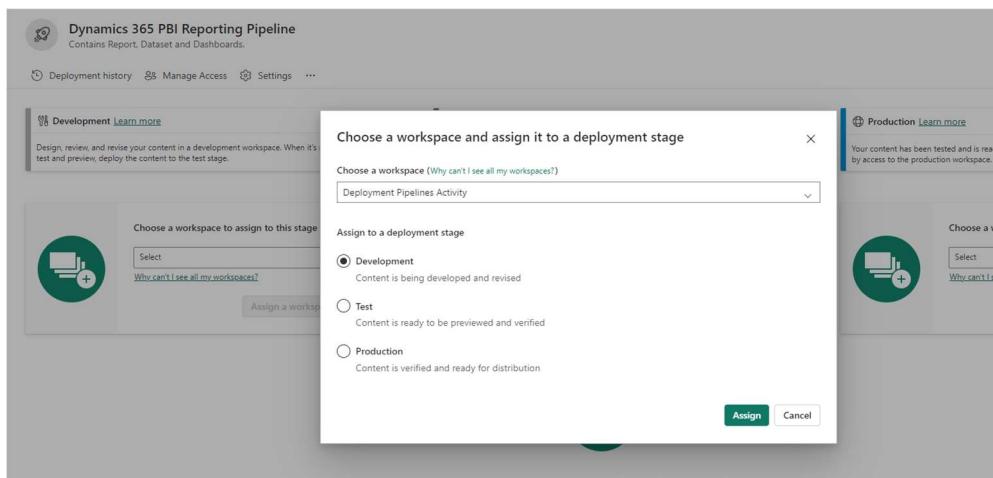
Deployment Pipeline in Power BI is a component of the Power BI Service, which enables you to manage multiple environments, define each environment, assign workspaces to the environments, compare the contents of two environments, have the history of deployment, rollback the change if needed, change the connections through the deployment process and more. Deployment Pipeline is a Premium feature in Power BI, which means you will need workspaces to be part of a Premium capacity or Premium Per User accounts to use the feature.

**Steps:** Login to the Power BI Service via <https://app.powerbi.com> and create a Workspace with Premium Per User or Premium Capacity.

Upload the respective Reports, datasets, and Dashboards to the created workspace.



Assign the workspaces to the respective environments by selecting them in the dropdown. Power BI comes with three environments i.e., Development, Testing and Production.



Assign the components to the Development environment as shown below and check for any anomalies and rectify on the same.

The screenshot shows the Dynamics 365 PBI Reporting Pipeline dashboard. On the left, there's a sidebar with navigation links like Home, Create, Browse, OneDrive data hub, Apps, Metrics, Monitoring hub, Deployment pipelines, Learn, Workspaces, and My workspace. The main area displays three stages: Development, Test, and Production. The Test stage is currently active, indicated by a green checkmark icon. The Development stage has a note: "Design, review, and revise your content in a development workspace. When it's ready to test and preview, deploy the content to the test stage." The Production stage has a note: "Your content has been tested and is ready to distribute to your consumers as an app or by access to the production workspace." Below these stages is a "Deployment Pipelines Activity" section showing 0 Dataflows, 0 Datamarts (Preview), 10 Datasets, and 1 Report. The report listed is "IndiGo Dynamics 365 Sales PBI Report". At the bottom, there are "Deploy to test" and "Deploy to production" buttons.

**Deploy the Reports to the Test Environment once the pre-requisites are validated and confirmed and check the deployment status.**

This screenshot shows the "Deploy from Development to Test" dialog box. It lists items to be deployed: "IndiGo Dynamics 365 Sales PBI Report", "IndiGo Dynamics 365 Sales PBI Report", and "IndiGo Dynamics 365 Sales PBI Report.pbix". Below the list is a note: "Report Version is 1.0 and contains all the changes performed." At the bottom, there's a checkbox for "Continue deployment in case 1 or more items fail" and two buttons: "Deploy" and "Cancel". The "Deploy" button is highlighted with a green checkmark.

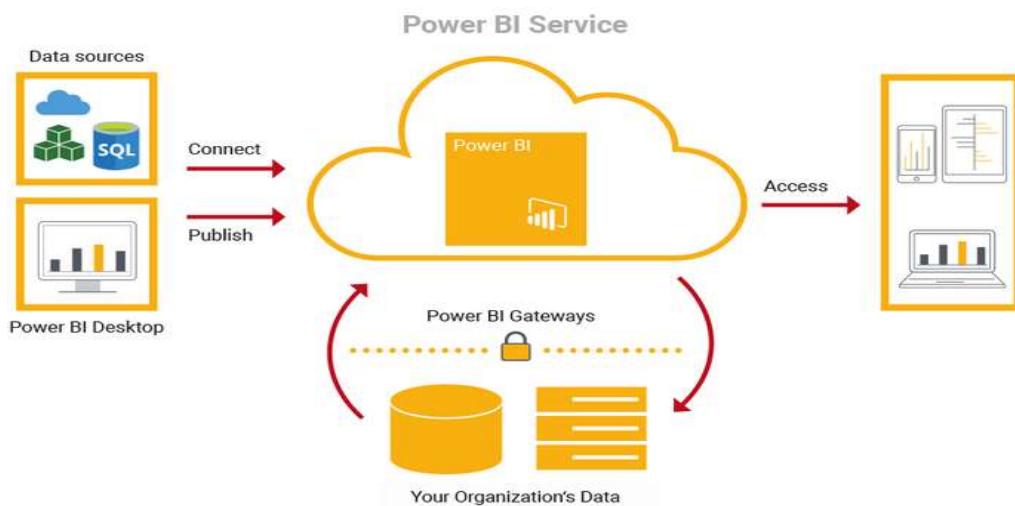
From the snapshot below the green tick indicates the changes are reflected accordingly.

This screenshot shows the Dynamics 365 PBI Reporting Pipeline dashboard again. The Test stage is now marked with a green checkmark and the text "Deployment complete". A "Go to workspace" button is visible. The Production stage has a note: "Your content has been tested and is ready to distribute to your consumers as an app or by access to the production workspace." The "Deployment Pipelines Activity" section shows the same report details as before. The "Deploy to test" and "Deploy to production" buttons are present at the bottom.

**Navigate to the Deployment History Tab and find the information of the Deployment carried out.**

To utilise the Best Practises of Deployment Pipelines please refer to the Official Documentation provided by Microsoft Power BI shared here: [Best practices for deployment pipelines, the Power BI Application lifecycle management \(ALM\) tool - Power BI | Microsoft Learn](#)

## 2.7. Setting Gateways in Power BI Service.

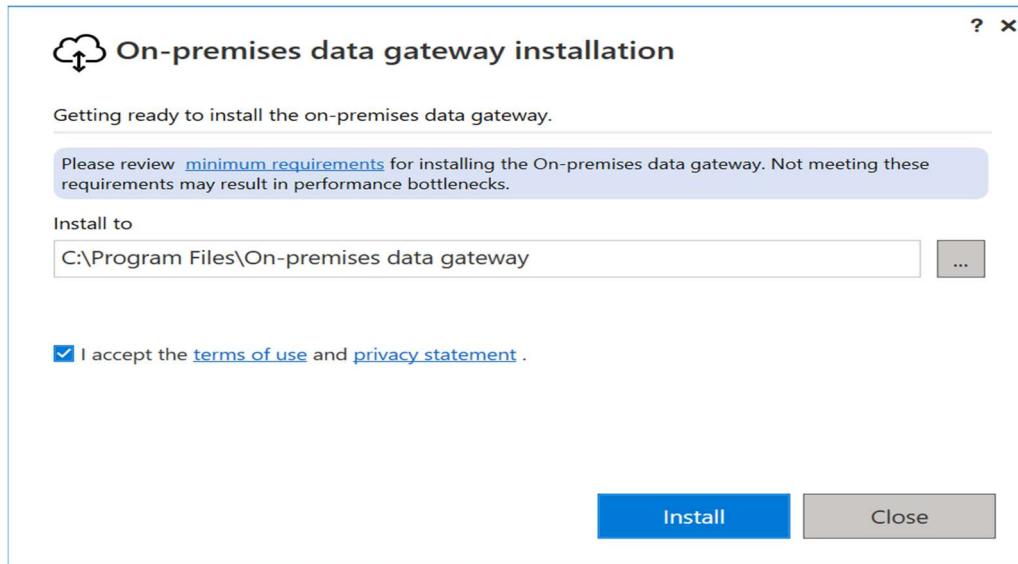


The On-Premises Data gateway acts as a bridge to provide quick and secure data transfer between on-premises data (data that isn't in the cloud) and several Microsoft cloud services. These cloud services include Power BI, PowerApps, Power Automate, Azure Analysis Services, and many more.

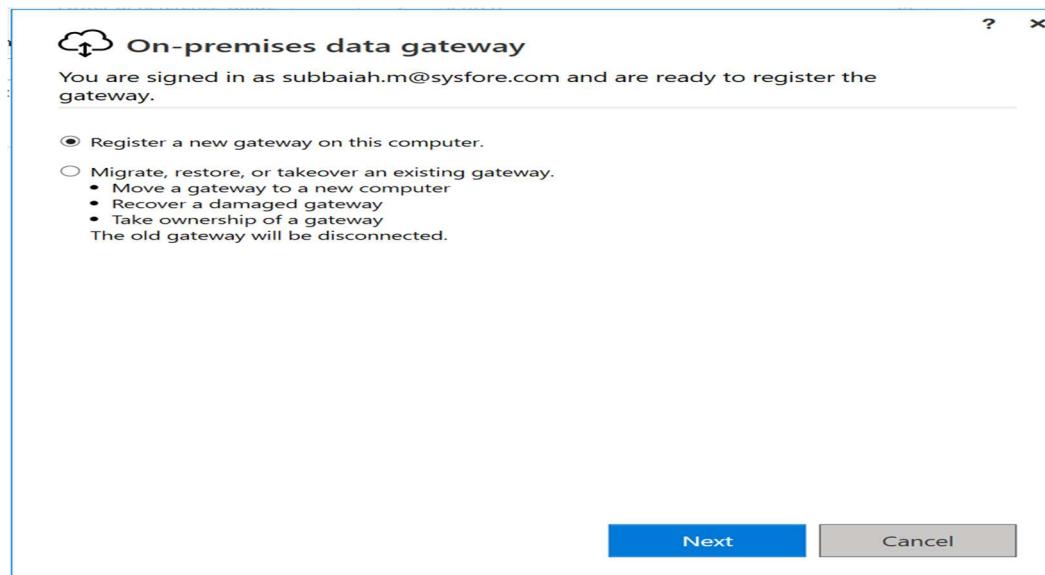
## 2.7.1. Creating a Gateway for On-Premises Data Fetch

Download the Standard Gateway from the Microsoft Link provided here [Power BI Gateway | Microsoft Power BI](#)

Run the Installer File and complete the installation process.



After successfully installing the Gateway, Provide a valid email address in order to register and run the data sources.



Enter a name for the gateway. The name must be unique across the tenant. Also enter a recovery key. You'll need this key if you ever want to recover or move your gateway. Select **Configure**.

 **On-premises data gateway**

You are signed in as subbaiah.m@sysfore.com and are ready to register the gateway.

New on-premises data gateway name\*  
powerbi-onpremisesdatagateway

Add to an existing gateway cluster [Learn more](#)

Recovery key (8 character minimum)\*  
••••••••

(i) This key is needed to restore the gateway and can't be changed. Record it in a safe place.

Confirm recovery key\*  
••••••••

We'll use this region to connect the gateway to cloud services: Southeast Asia [Change Region](#)

[Provide relay details \(optional\)](#) By default, Azure Relays are automatically provisioned

**Configure** **Cancel**

Upon completion of the steps finally check and see whether the Gateway is online.

 **On-premises data gateway**

**Status**

- Service Settings
- Diagnostics
- Network
- Connectors
- Recovery Keys

**The gateway powerbi-onpremisesdatagateway is online and ready to be used.**

Gateway version number: 3000.178.9 (June 2023)

Help us improve the on-premises data gateway by sending usage information to Microsoft.  
[Read the privacy statement online](#)

Logic Apps, Azure Analysis Services	<a href="#">Create a gateway in Azure</a>
Southeast Asia	

Power Apps, Power Automate	
Southeast Asia	 Ready

Power BI	
Default environment	 Ready

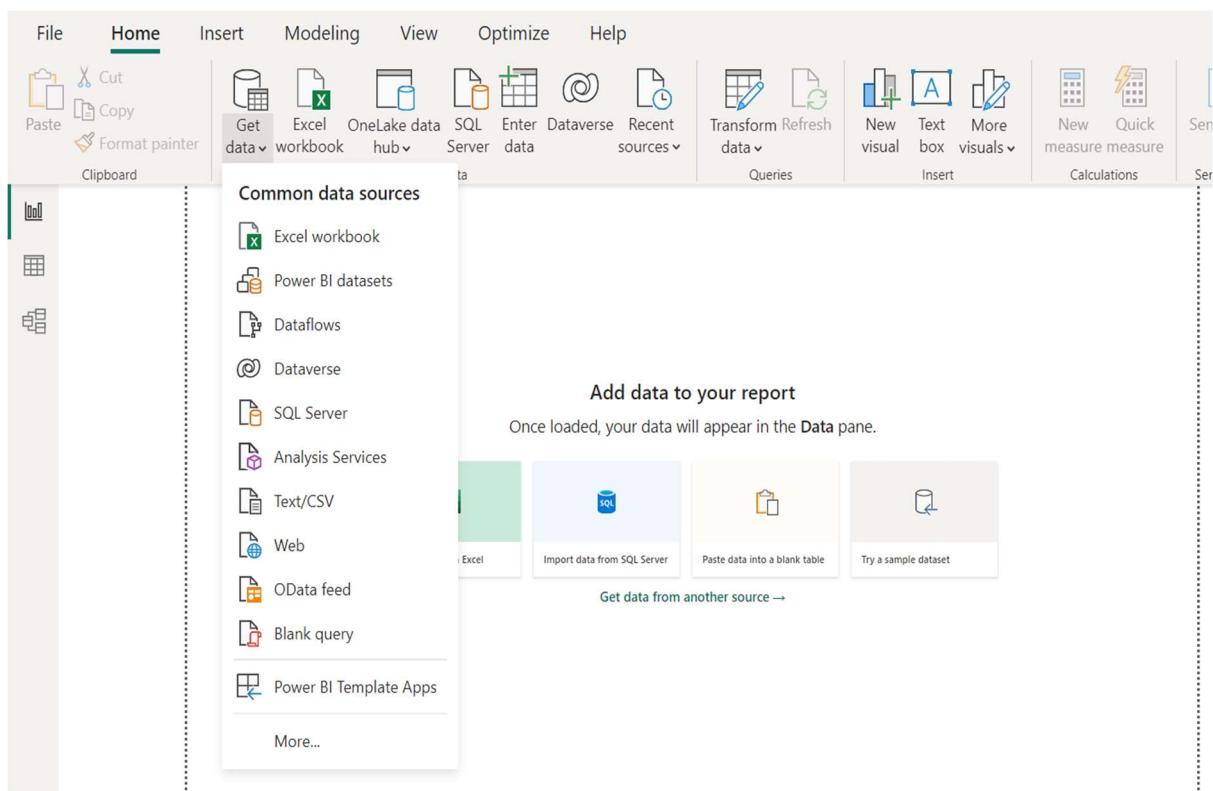
## 3. Power BI Desktop

### 3.1. Extract/Ingestion of Data from Various Sources.

This is the first step in the whole ETL process, it involves extracting data from a variety of sources, including cloud-based sources like SharePoint Online, Azure Storage, and OneDrive. The process also supports extracting data from on-premises sources like PostgreSQL, SQL Server, Excel, CSV, and other formats.

#### Getting Data

In Power BI Desktop at the **Home** tab click on **Get Data** which can be found in the top left corner. This shows you all the available data connections in Power BI.



Provide the Credentials and Endpoint for Respective data sources and Import.

For Connecting to various data sources present in cloud and On-Premises please refer to the URL's provided below that gives detailed info on the compatibility methods recommended.

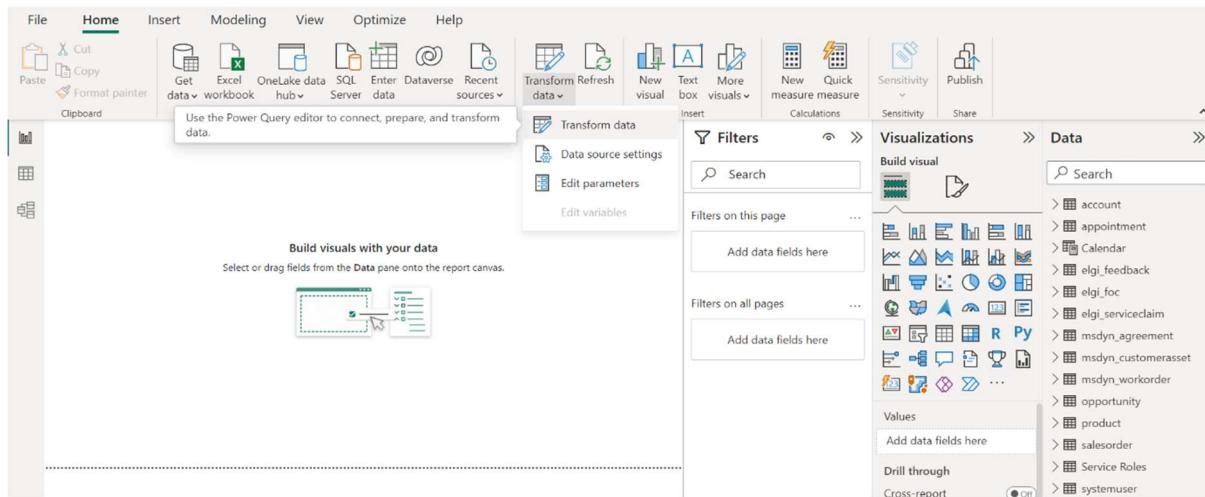
<https://learn.microsoft.com/en-us/power-bi/connect-data/desktop-data-sources>

<https://urbizedge.com/connect-power-bi-to-multiple-data-sources-cloud-on-premises/>

## 3.2. Data Transformation for Handling Big Data and Limiting the Size of Import in Power BI Desktop

*Applying RowLimit parameter to import only the number of records Needed.*

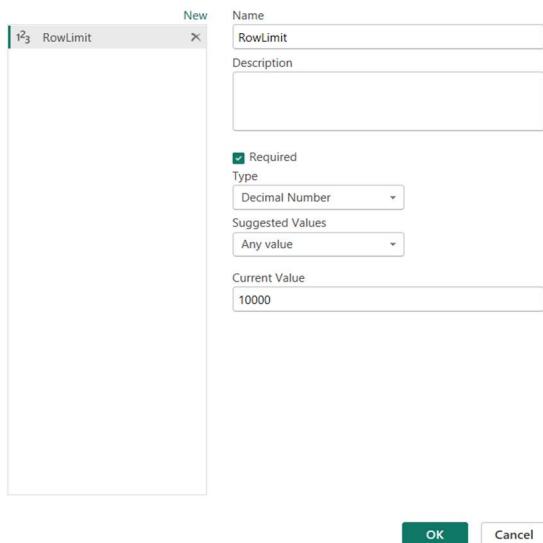
Open the Power BI Desktop, under Home section click on the **Transform Data** tab to open the Power Query Editor.



Upon entering the Power Query Editor navigate towards the Home tab and Click on Manage Parameters.

createdby	createdon	actualend	subject	statecodename	statuscodename	c
63E6D1D1-ADFF-ED11-8F6C-000...	06-06-2023 12:02:30	null	null	Open	Free	SI
7EEFF523-AEFF-ED11-8F6C-000...	07-06-2023 11:38:53	null	null	Open	Free	BI
7EEFF523-AEFF-ED11-8F6C-000...	09-06-2023 08:52:30	null	null	Open	Free	SI
63E6D1D1-ADFF-ED11-8F6C-000...	15-06-2023 02:23:44	null	Enquiry visit	Open	Free	MS
02D590B6-0001-EE11-8F6C-000...	15-06-2023 04:52:17	null	null	Open	Free	MS
02D590B6-0001-EE11-8F6C-000...	15-06-2023 04:52:57	null	null	Open	Free	MS
8E0C682B-AEFF-ED11-8F6C-000...	16-06-2023 05:09:16	null	null	Open	Free	P:
8E0C682B-AEFF-ED11-8F6C-000...	16-06-2023 05:15:43	null	null	Open	Free	P:
9E0C682B-AEFF-ED11-8F6C-000...	16-06-2023 05:17:28	null	null	Open	Free	P:
8E0C682B-AEFF-ED11-8F6C-000...	16-06-2023 05:35:58	null	null	Open	Free	P:
11E0C682B-AEFF-ED11-8F6C-000...	16-06-2023 05:37:15	null	null	Open	Free	P:
8E0C682B-AEFF-ED11-8F6C-000...	16-06-2023 06:34:30	null	null	Open	Free	P:
8E0C682B-AEFF-ED11-8F6C-000...	16-06-2023 06:39:44	null	null	Open	Free	P:
63E6D1D1-ADFF-ED11-8F6C-000...	06-06-2023 11:46:35	null	null	Open	Free	SI
7597980D-AEFF-ED11-8F6C-000...	15-06-2023 06:19:57	null	null	Open	Free	MS
7597980D-AEFF-ED11-8F6C-000...	15-06-2023 06:20:07	null	null	Open	Free	MS
E5F1115C-FEFP-ED11-8848-000...	27-05-2023 06:00:43	null	null	Open	Free	P:
E5F1115C-FEFP-ED11-8848-000...	30-05-2023 09:46:10	null	null	Open	Free	P:
E5F1115C-FEFP-ED11-8848-000...	30-05-2023 13:26:45	null	null	Open	Free	P:
13AFFCD0-6A3A-ED11-9DB0-002...	24-05-2023 10:25:39	24-05-2023 10:29:36	cV	Completed	Completed	P:
E5F1115C-FEFP-ED11-8848-000...	24-05-2023 10:31:47	null	null	Open	Free	P:
13AFFCD0-6A3A-ED11-9DB0-002...	24-05-2023 10:35:24	null	null	Open	Free	P:
E5F1115C-FEFP-ED11-8848-000...	25-05-2023 06:15:56	null	null	Open	Free	P:
E5F1115C-FEFP-ED11-8848-000...	25-05-2023 06:26:52	null	null	Open	Free	P:
E5F1115C-FEFP-ED11-8848-000...	25-05-2023 06:31:11	null	null	Open	Free	P:
77708CEA-ADFF-ED11-8F6C-000...	03-07-2023 10:24:32	null	EG15V	Open	Free	AI
77708CEA-ADFF-ED11-8F6C-000...	03-07-2023 10:24:45	null	null	Open	Free	AI

Under the Parameters Configuration window create the Parameter **RowLimit** as shown below and click **OK**.



Observe that now the Parameter has appeared below the list of tables.

Go to the table and under same Home Tab click on Keep Rows, Keep Top Rows, provide the number of rows to be kept and see in the applied steps to see the change done.

Right click on the Table Selected and choose Advanced Query Editor to open the M code that's generated and apply the changes as shown below.

```

let
    Source = CommonDataService.Database("elgi-testing.crm8.dynamics.com", [CreateNavigationProperties=false]),
    dbo_product = Source{[Schema="dbo",Item="product"]}[Data],
    #"Kept First Rows" = Table.FirstN(dbo_product,RowLimit),
    Result = if RowLimit > 0 then #"Kept First Rows" else dbo_product
in
    Result

```

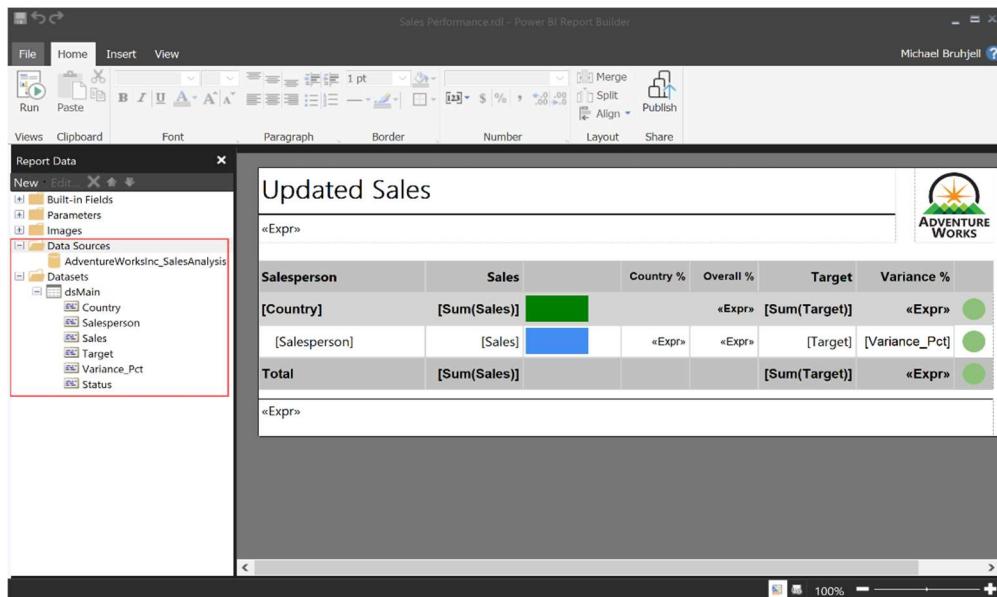
Go to the table and observe the changes that have reflected based on the parameter.

Queries [14]

	A <sup>B</sup> C productid	createdon	A <sup>B</sup> C createdby
1	FB58AC38-CCB1-ED11-83FE-000...	21-02-2023 09:43:41	13AFFCDO-6A3A-ED11-9DB...
2	1B334071-CCB1-ED11-83FE-000...	21-02-2023 09:45:15	13AFFCDO-6A3A-ED11-9DB...
3	D2695EF9-CCB1-ED11-83FE-000...	21-02-2023 09:49:10	13AFFCDO-6A3A-ED11-9DB...
4	D76D4D73-6DB6-ED11-B597-000...	27-02-2023 07:07:57	13AFFCDO-6A3A-ED11-9DB...
5	7D8DB42B-03C7-ED11-B597-000...	20-03-2023 09:39:58	13AFFCDO-6A3A-ED11-9DB...
6	0CCC4852-04C7-ED11-B597-000...	20-03-2023 09:48:12	13AFFCDO-6A3A-ED11-9DB...
7	A54C9961-70D3-ED11-A7C7-002...	05-04-2023 05:11:56	13AFFCDO-6A3A-ED11-9DB...
8	E1E78B75-70D3-ED11-A7C7-002...	05-04-2023 05:12:29	13AFFCDO-6A3A-ED11-9DB...
9	F3FB9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:01	89C1E17D-85D7-43FD-AE5...
10	F5FB9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:02	89C1E17D-85D7-43FD-AE5...
11	F7FB9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:02	89C1E17D-85D7-43FD-AE5...
12	F9FB9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:02	89C1E17D-85D7-43FD-AE5...
13	FBFB9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:02	89C1E17D-85D7-43FD-AE5...
14	FDFB9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:02	89C1E17D-85D7-43FD-AE5...
15	FFFB9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:02	89C1E17D-85D7-43FD-AE5...
16	O1FC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:03	89C1E17D-85D7-43FD-AE5...
17	O3FC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:03	89C1E17D-85D7-43FD-AE5...
18	O5FC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:03	89C1E17D-85D7-43FD-AE5...
19	O7FC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:03	89C1E17D-85D7-43FD-AE5...
20	O9FC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:03	89C1E17D-85D7-43FD-AE5...
21	OBFC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:03	89C1E17D-85D7-43FD-AE5...
22	ODFC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:04	89C1E17D-85D7-43FD-AE5...
23	OFFC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:04	89C1E17D-85D7-43FD-AE5...
24	11FC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:04	89C1E17D-85D7-43FD-AE5...
25	13FC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:04	89C1E17D-85D7-43FD-AE5...
26	15FC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:04	89C1E17D-85D7-43FD-AE5...
27	17FC9061-45A8-ED11-AAD0-002...	14-02-2023 10:52:04	89C1E17D-85D7-43FD-AE5...
28			

166 COLUMNS, 30 ROWS Column profiling based on top 1000 rows

## 4. Power BI Report Builder – Creating Paginated Reports (.rdl) Files



**Power BI Report Builder** is a tool for authoring *paginated reports* that you can publish to the Power BI service. Paginated reports are designed to be printed or shared.

They're formatted to fit well on a page, and they display *all* the data in a table, even if the table spans multiple pages. When you design a paginated report, you're creating a *report definition* that specifies what data to retrieve, where to get it, and how to display it.

The **Power BI Report Builder** can be directly downloaded from the Microsoft Store or can be accessed via the Official Link provided by Microsoft here as follows:

<https://www.microsoft.com/en-us/download/details.aspx?id=58158>

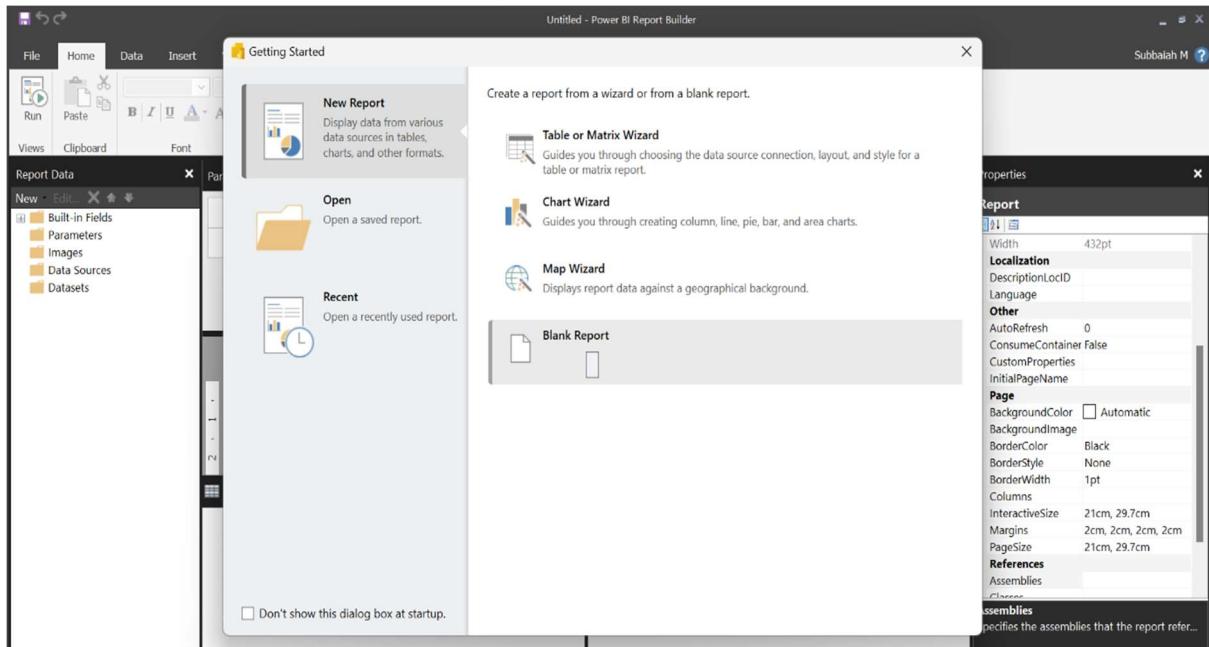
### Pre-Requisites

License requirements for Power BI Paginated Reports (.rdl files) are the same as for Power BI Reports (.pbix files).

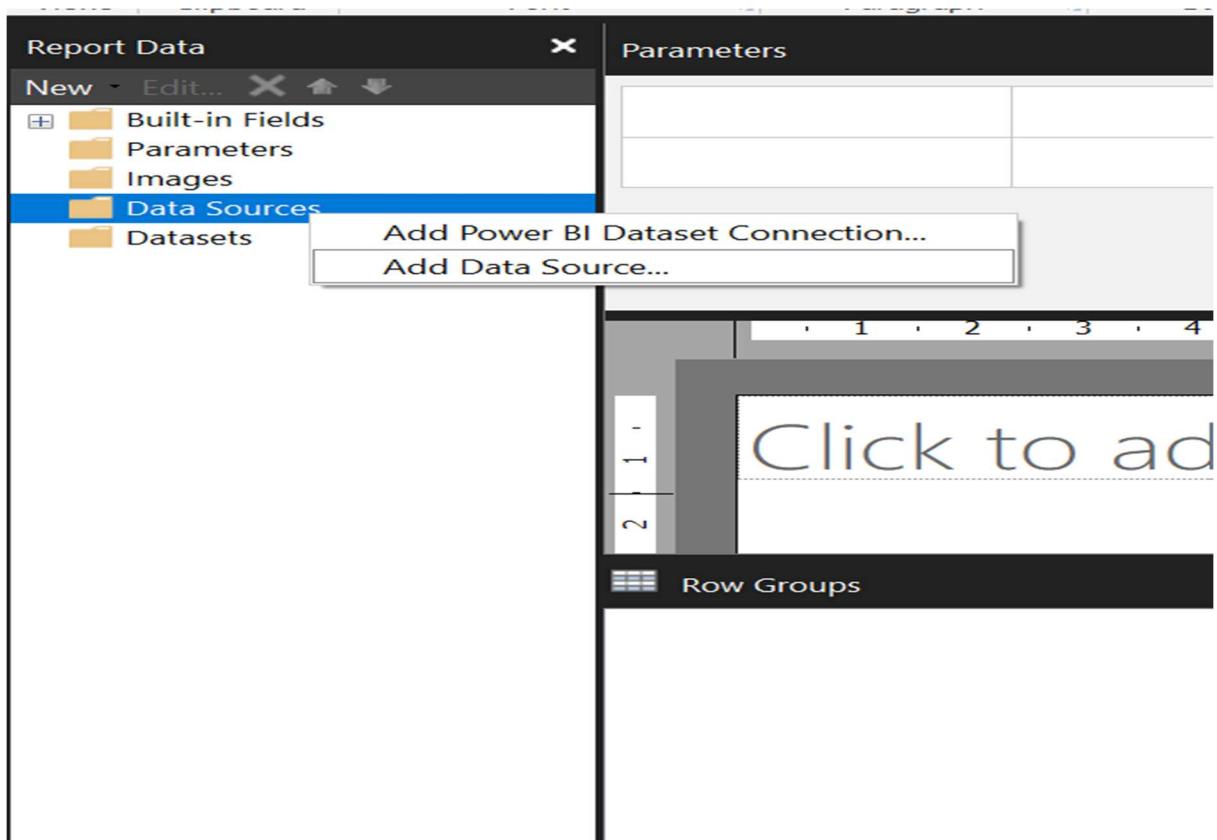
- You don't need a license to download Power BI Report Builder from the Microsoft Download Centre for free.
- With a free license, you can publish paginated reports to My Workspace in the Power BI service.
- With a Power BI Pro license or a PPU license, you can publish paginated reports to other workspaces. You also need at least a contributor role in the workspace.

## 4.1. Designing Basic Invoice Reports to get Started.

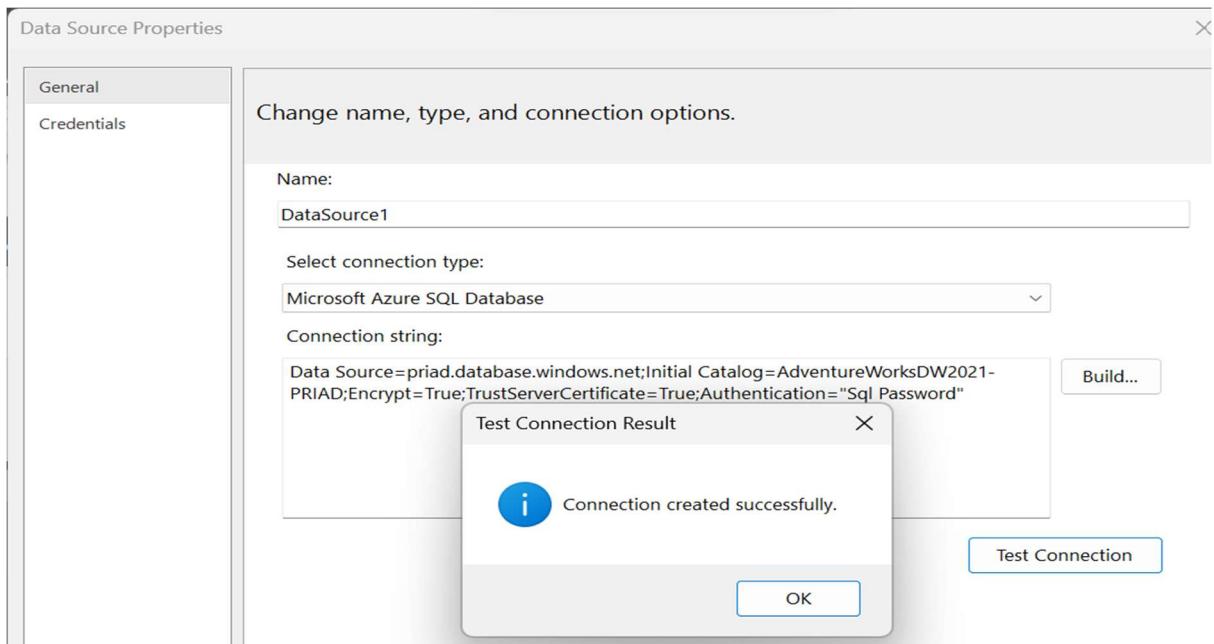
Open the Power BI Report Builder that's installed and open a new Report instance.



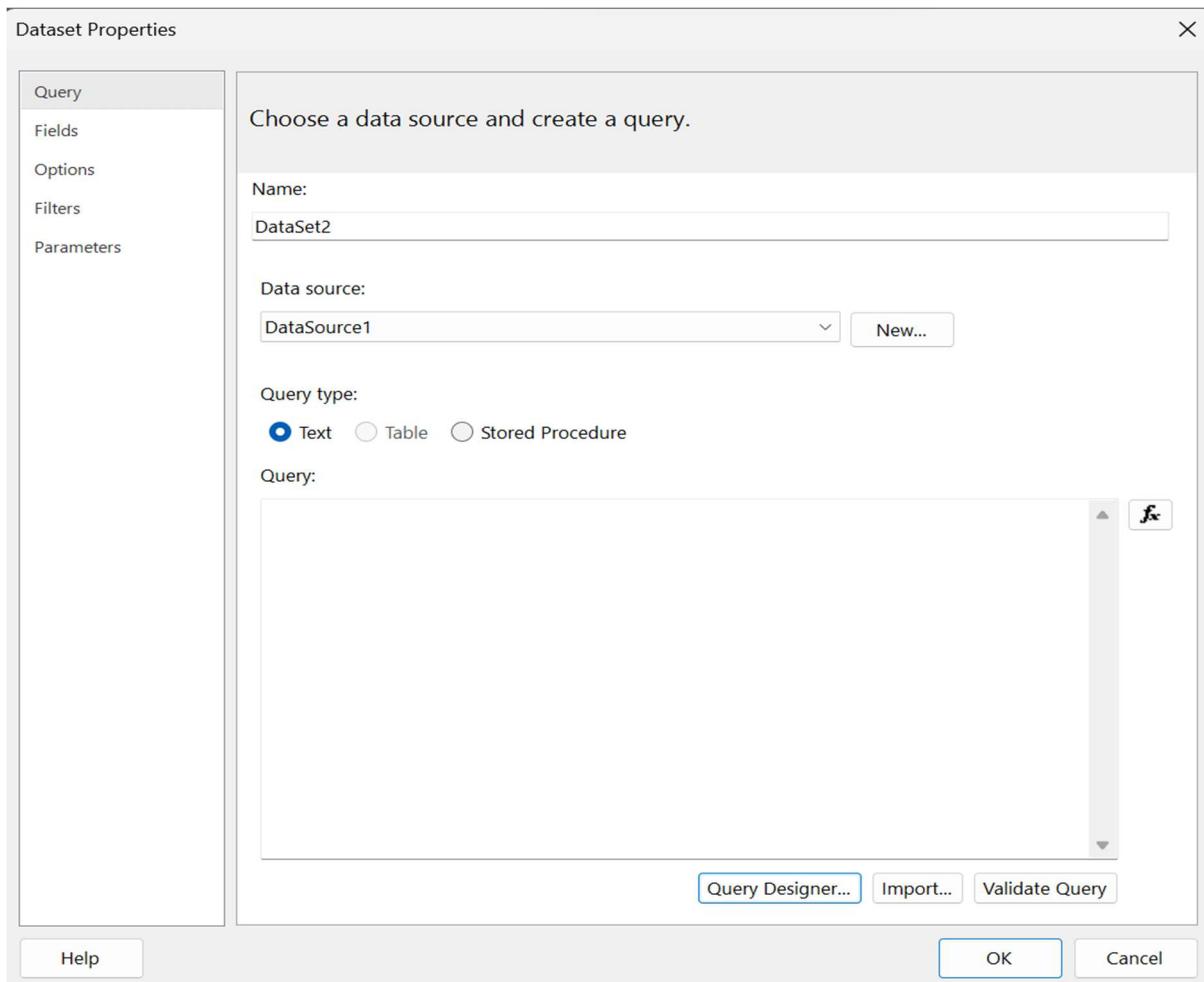
Go to the Data Sources section and click on Add a new data source, Pass the credential and endpoints for the data to be connected.



Connect to the Data source and establish a connection successfully.



Go to the Datasets section and add the Newly created Data Source in the Configuration Window.



Enter the Query Designer and perform the customisations as shown below.

Query Designer

Selected fields

Field	Aggregate
SalesOrderLineNumber	(none)
OrderQuantity	(none)
UnitPrice	(none)
SalesAmount	(none)
EnglishProductName	(none)

Relationships

Applied filters

Field name	Operator	Value	Parameter
SalesOrderNumber	is	SO51721	

Click OK once done. Navigate to the Insert Tab, Click on Insert Table and move to a suitable section. Drag and drop the fields from the datasets section onto the table as shown below.

Add the Report Header as Invoice Report and Save the File as Invoice Report.rdl

Invoice Report.rdl - Power BI Report Builder

Insert

Table Wizard... Insert Table

Parameters

Properties

Textbox7

Data Only

Fill

Font

General

Interactive Sort

Lists

BackgroundColor

Go to the Home Tab, Click on the Run Button to Preview the Report Created.

The screenshot shows the Power BI Report Builder interface with a dark theme. The top navigation bar includes 'File', 'Run' (selected), 'Views', 'Zoom', 'First', 'Previous', 'Next', 'Last', 'Stop', 'Refresh', 'Print', 'Page Setup', 'Print Layout', 'Export', 'Document Map', 'Parameters', 'Options', and 'Find'. Below the toolbar is a title 'Invoice Report'. A table titled 'Sales Order Line Number' displays seven rows of data:

Sales Order Line Number	English Product Name	Order Quantity	Unit Price	Sales Amount
1	Hydration Pack - 70 oz.	12	31.8942	375.0758
2	LL Mountain Pedal	6	24.2940	145.7640
3	Mountain-200 Black, 38	13	1331.0942	16958.1401
4	Long-Sleeve Logo Jersey, XL	3	29.9940	89.9820
5	LL Mountain Frame - Black, 48	1	149.8740	149.8740
6	LL Mountain Seat/Saddle	3	16.2720	48.8160
7	LL Bottom Bracket	7	32.3940	226.7580

We have successfully created a Sample Invoice Report to explore the tool.

## 5. Power BI Report Server – On Premises

The screenshot shows the Power BI Report Server web interface. The top navigation bar includes 'Power BI Report Server', 'Favorites', 'Browse', 'Comments', and user 'NORTHAMERICA\duryan'. Below the navigation is a breadcrumb trail: 'Home > PBI Reports > Sales Report'. The main content area displays three charts: a horizontal bar chart for 'Reseller Total Sales by Product Category Name' (Bikes: \$64M, Components: \$12M, Clothing: \$2M, Accessories: \$1M), a donut chart for 'Reseller Total Sales by Promotion Name' (Volume Discount 11 to 14: \$2.89M (3.5%), No Discount: \$75.03M (93.2%)), and a bar chart for 'Reseller Total Sales by Year' (2010: \$5M, 2011: \$10M, 2012: \$20M, 2013: \$34M). A sidebar on the right is titled 'Filters'.

Power BI Report Server is an on-premises report server with a web portal in which you display and manage reports and KPIs. Along with it come the tools to create Power BI reports, paginated reports, mobile reports, and KPIs.

## Comparison

Power BI Report Server is like both SQL Server Reporting Services and the Power BI online service, but in different ways. Like the Power BI service, Power BI Report Server hosts Power BI reports (.pbix), Excel files, and paginated reports (.rdl).

Like Reporting Services, Power BI Report Server is on premises. Power BI Report Server features are a superset of Reporting Services: everything you can do in Reporting Services, you can do with Power BI Report Server, along with support for Power BI reports.

For further details on the capabilities and limitations please refer to the below link:  
<https://learn.microsoft.com/en-us/power-bi/report-server/compare-report-server-service>

## Licensing and Considerations

Power BI Report Server is available through two different licenses: [Power BI Premium](#) and [SQL Server Enterprise Edition](#) with Software Assurance.

With a Power BI Premium license, you can create a hybrid deployment mixing cloud and on-premises.

### Note:

For Power BI Premium, Power BI Report Server is only included with P SKUs. It is not included with EM SKUs.

## 5.1. Installation and Configuring the Power BI Report Server

Install the PBI Report Server from the official Microsoft URL provided as follows:

<https://www.microsoft.com/en-us/download/details.aspx?id=56722>

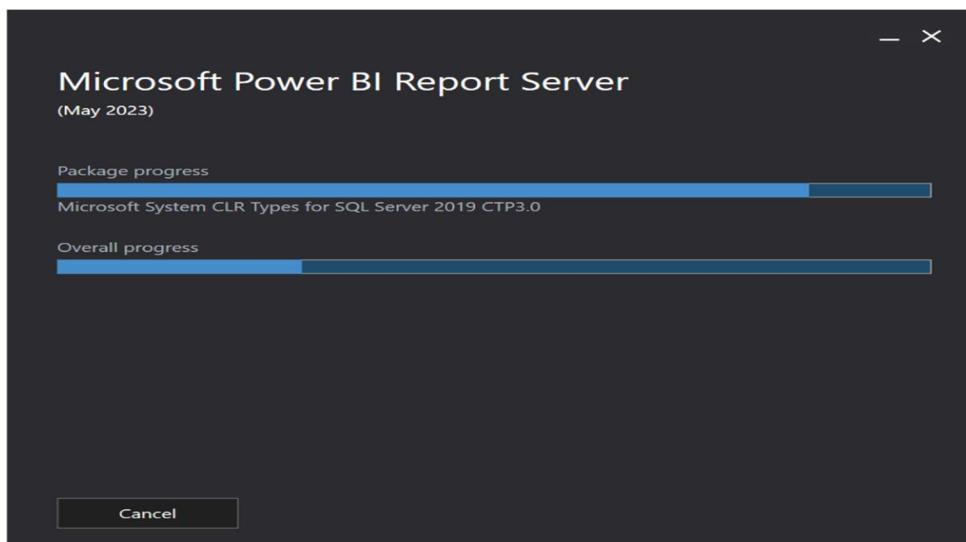
Select the [PowerBIReportServer.exe](#) from the Options and click on Next.

Microsoft Power BI Report Server - May 2023

The screenshot shows the Microsoft Power BI Report Server download page. At the top, there is a note: "Important! Selecting a language below will dynamically change the complete page content to that language." Below this is a "Select Language:" dropdown menu set to "English" and a large red "Download" button. A descriptive text block states: "Power BI Report Server, available as part of Power BI Premium, enables on-premises web and mobile viewing of Power BI reports, plus the enterprise reporting capabilities of SQL Server Reporting Services." Below this is a "Details" section with a collapsed arrow icon. A note says: "Note: There are multiple files available for this download. Once you click on the "Download" button, you will be prompted to select the files you need." The "Details" section contains the following information:

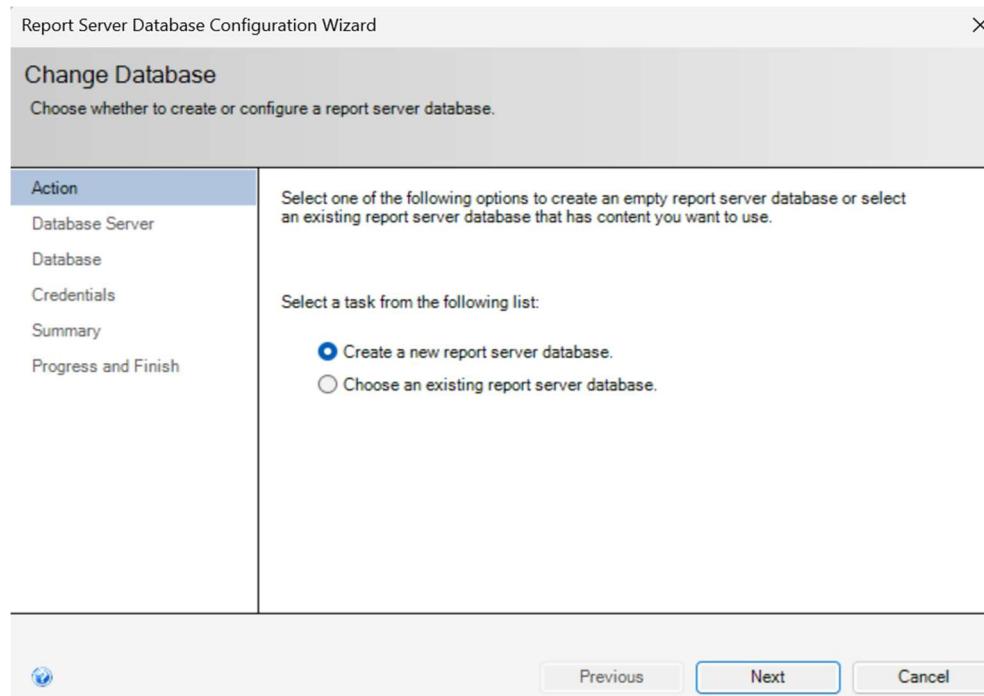
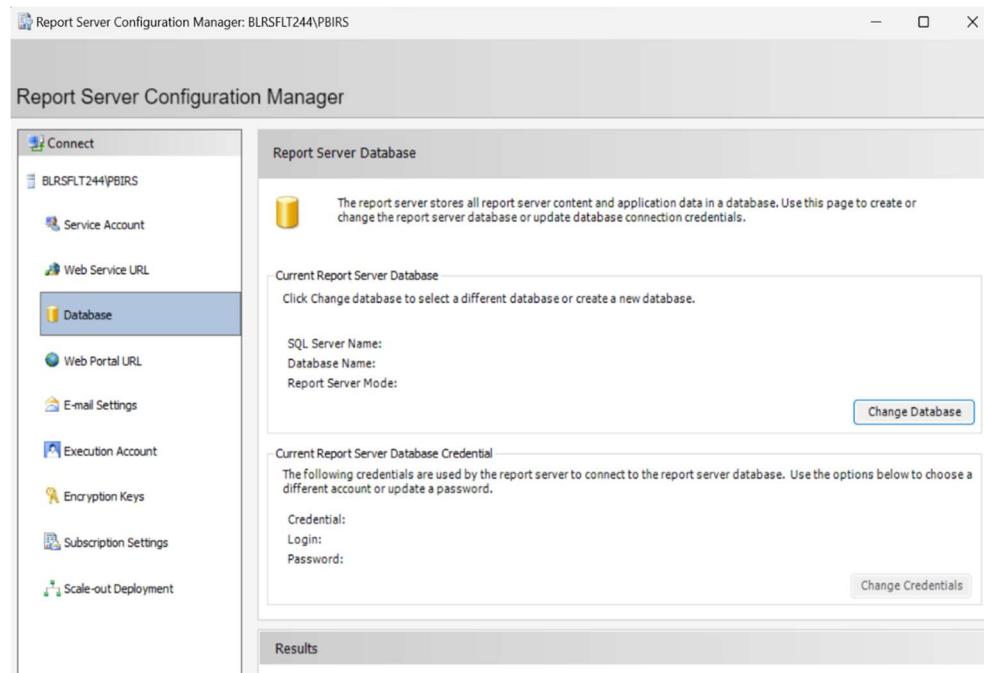
Version:	Date Published:
15.0.1112.48	6/6/2023
File Name:	File Size:
PBIDesktopSetupRS.exe PBIDesktopSetupRS_x64.exe PowerBIReportServer.exe	430.2 MB 472.7 MB 430.1 MB

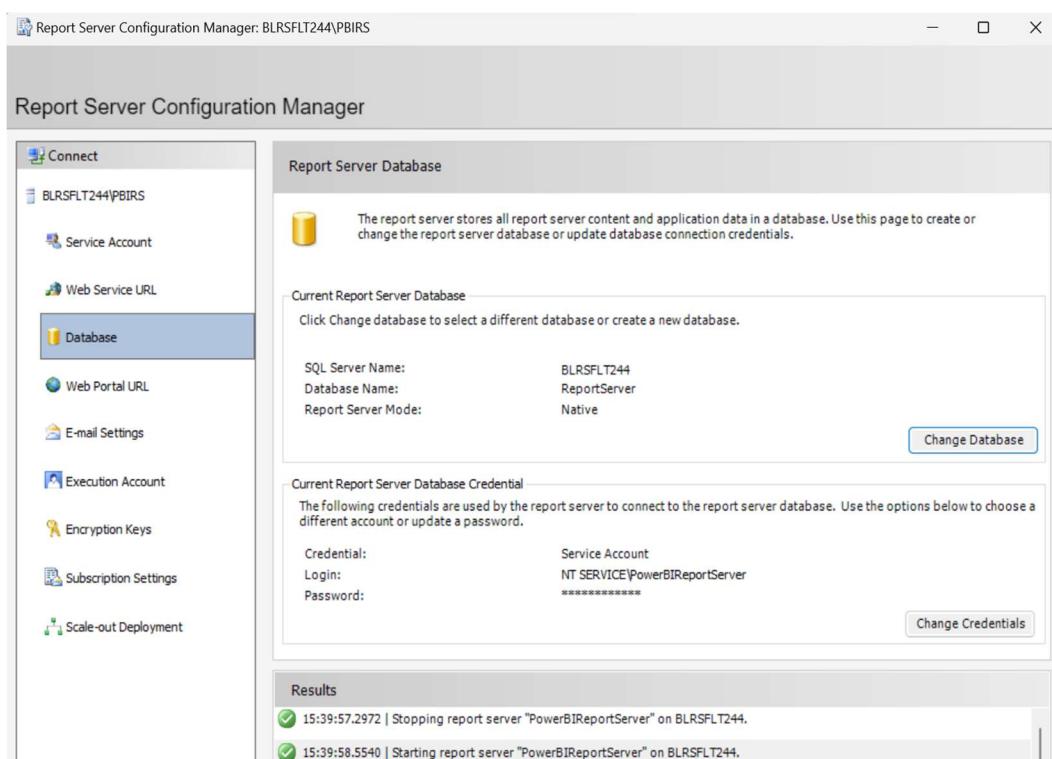
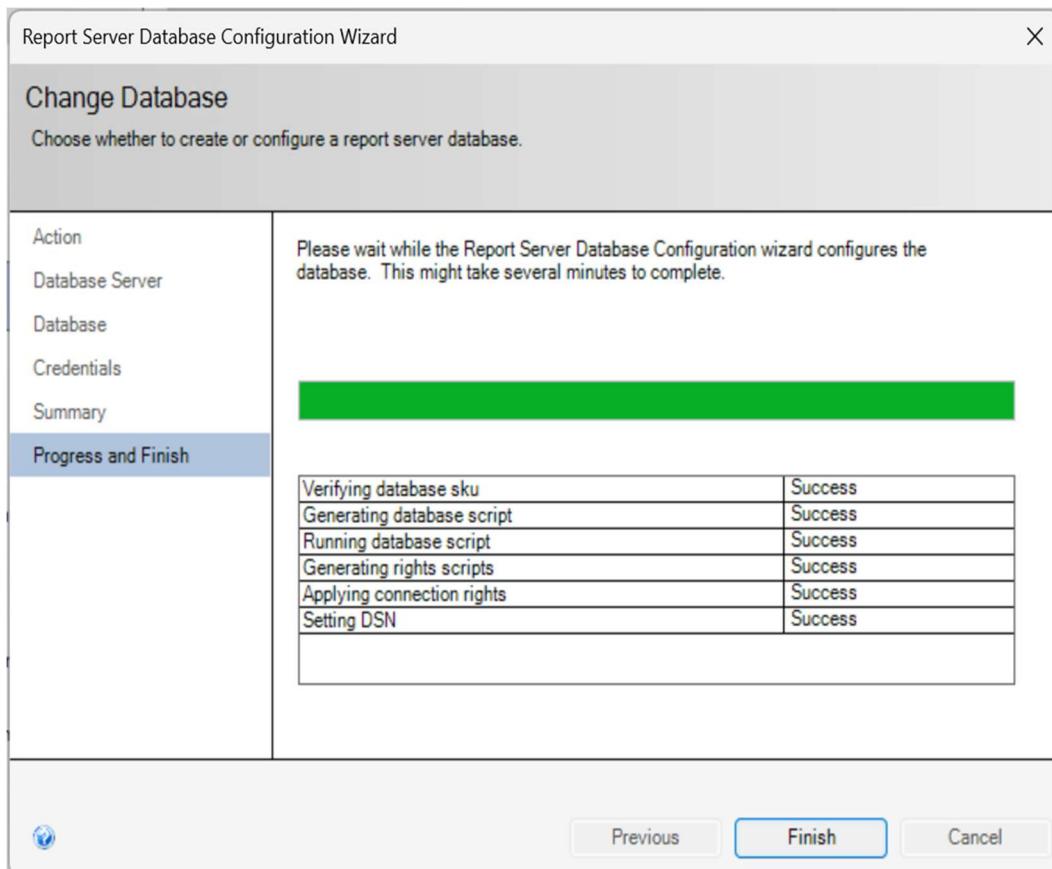
# Installation Process



# Database Setup Process

Open the Database section once installation is complete, Click on Change Database and follow the steps below.

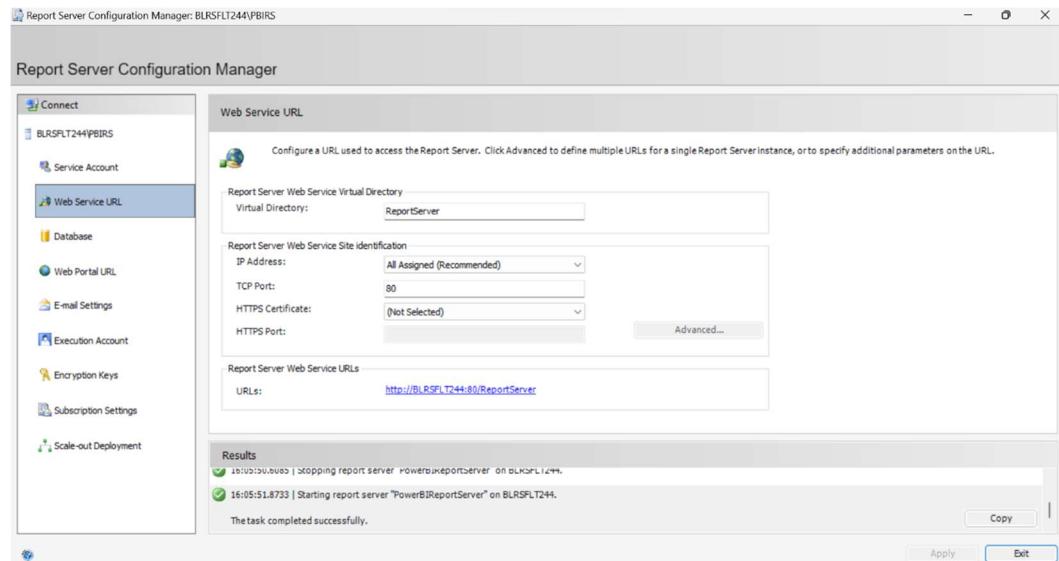




After confirming things in the Summary step, the set-up will continue and finishes soon after. The window below shows a successful set-up of database creation.

# Web URL Setup Process

The Report Server needs web portals, The URLs need to be setup primarily for that, The web service, and the web portal.

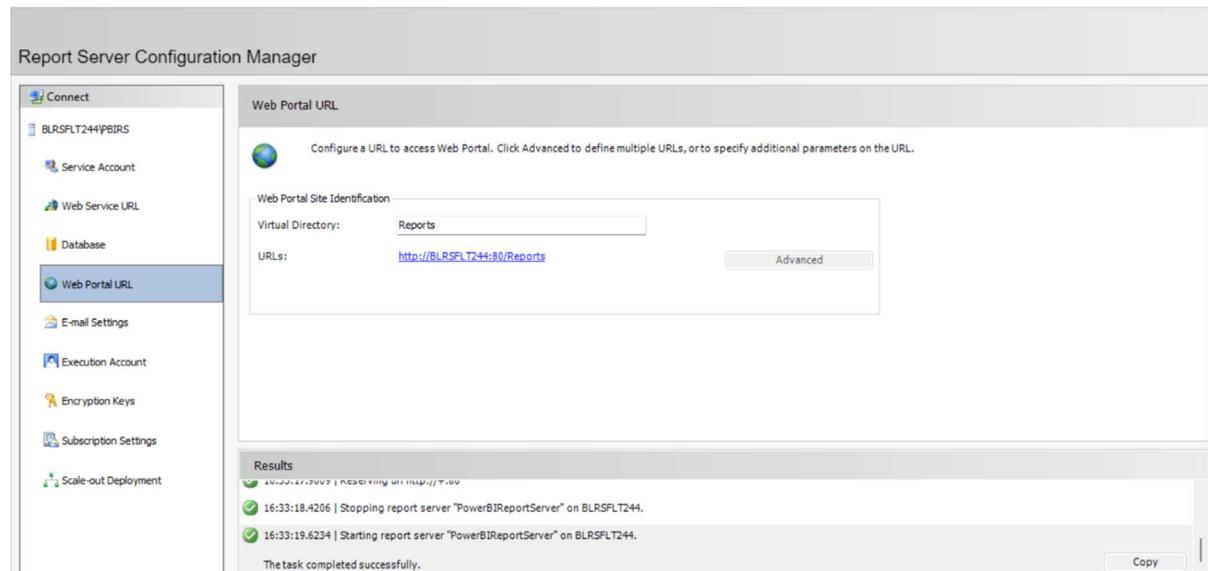


Open the URL in a browser and ensure the above details are displayed.

**blrsflt244/ReportServer - /**

Microsoft Power BI Report Server Version 15.0.1112.48

# Web Portal Setup Process



If the set-up finished successfully, you would see the success message, and you can click on the web portal URL to open it in a browser window.

The screenshot shows the Power BI Report Server web interface. In the top navigation bar, there are links for 'Power BI Report Server' and 'Home'. On the right, there are icons for 'Search', 'Settings', 'Download', 'Help', and the user 'Subbaiah MA'. Below the navigation, there are tabs for 'Favorites' and 'Browse', with 'Browse' being the active tab. A search bar and several other navigation buttons ('New', 'Upload', 'Publish', 'Tiles', 'Manage folder') are also present. The main content area displays a message: 'This folder is empty.' To the right of this message is a context menu with the following options: 'Folder', 'KPI', 'Power BI Report', 'Paginated Report', 'Dataset', and 'Data Source'. The 'Dataset' option is highlighted.

The web portal should show you the environment of the Power BI report server's admin view.

## 5.2. Adding Assets to the Power BI Report Server

The screenshot shows the Power BI Report Server web interface with the 'Browse' tab selected. On the left, there is a list titled 'Power BI Reports (1)' containing a single item: 'Financial Dashboard'. Overlaid on the page is a Windows 'Open' file dialog. The dialog shows a file list with the following entries:

Name	Date modified
Financial Dashboard (Mobile View)	29-08-2022 15:56
Financial Dashboard	25-08-2022 14:37
Financial Sample	04-08-2021 09:39
Link	09-09-2022 10:28

The 'File name:' dropdown at the bottom of the dialog is empty. At the bottom right of the dialog are 'Open' and 'Cancel' buttons.

Click on the Upload Button to select the respective reports and the datasets to Publish to the Power BI Report Server.

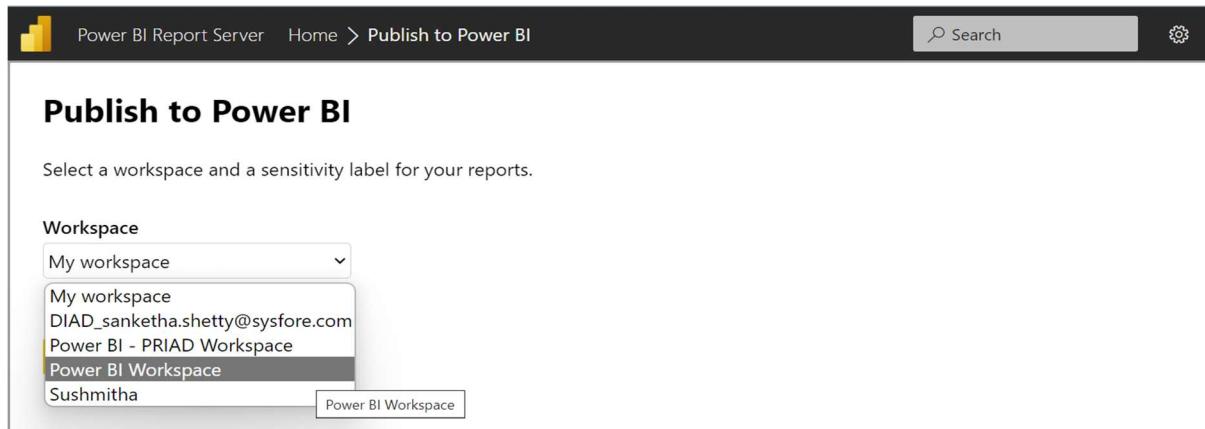
The screenshot shows the Power BI Report Server web interface with the 'Browse' tab selected. On the left, there is a list titled 'Paginated Reports (1)' containing a single item: 'Sales Performance Report (Drill Down)'. In the top navigation bar, there are several buttons: 'Search', 'Settings', 'Download', 'Help', and the user 'Subbaiah MA'. Below these are buttons for 'New', 'Upload', 'Publish', 'Tiles', and 'Manage folder'. The 'Upload' button is specifically highlighted with a red box.

## 5.3. Publishing the Reports from Report Server to PBI Service Workspaces

Right Click on the Report that's been uploaded in the Report Server to enter the settings and select Publish to Power BI.



Select the Workspace once the credentials are provided and gets signed in successfully.



Click on the appropriate workspace and wait until it gets published and displays the Published Status and navigate to the Workspace to render the Published Report.

