Prerequisites for Connecting to Microsoft Power BI Cloud

1. Open Access to Power BI Endpoints

Integration with Power BI requires opening the following endpoints:

- app.powerbi.com (port 443)
- *.windows.net (port 443)
- powerbi.microsoft.com (port 443)
- dc.services.visualstudio.com (port 443)
- login.microsoftonline.com (port 443)
- *.office.com (port 443)
- powerapp.com (port 443)
- powerapps.com (port 443)

These endpoints must be accessible from either the Metric Insights application server, or the Remote Data Collector host.

[Release 6.x]: 'Remote Data Collector' renamed to 'Remote Data Processor'

[Release 6.4.0]: The data from Power BI can be fetched via DAX API without using an RDP. Note that this method of fetching data has limitations of 100,000 rows or 1,000,000 values per request. This setting is controlled by the <u>OleDB data parameter</u> in Microsoft Power BI Cloud plugin connection profile.

• See details on DAX API limitations for fetched data

There are two authentication types:

- Username/Password
- OAuth

If you are using OAuth, make sure the endpoints are open and proceed with configuring <u>Microsoft Power BI OAuth in Azure AD</u>. After OAuth is configured, skip to <u>Step 7</u> if you will be using an RDP or skip to <u>Step 9</u> if you will not be using an RDP.

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If your primary aim is to pull *images* from Power BI, and DAX API limitations for data fetching are suitable for you, then the endpoints must be accessible from the Metric Insights server. Proceed with the steps described in the article **skipping** the Steps <u>7</u> and <u>8</u>.

The integration is taking place directly from the application server.

If you wish to get data only (or both data and images) without limitations for data

fetching, then a Remote Data Processor (RDP) must be deployed. The RDP must be installed on a *Windows* machine that can access the Power BI endpoints listed above.

The integration is taking place on the <u>RDP host machine</u> (Windows).

2. Access Microsoft Azure Portal

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	Create a resource	App registrations	Azure Active Directory	Groups	Enterprise applications	Analysis Services	Policy	Virtual machines	Recent	More servic	es			
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App registrations 🖉 ···· ×										~				
+ New registration 🕀 Endpoints 🧷 Troubleshooting 🖒 Refresh 🞍 Download 🖼 Preview features 🖗 Got feedback?														

- 1. In Azure Portal, access App registrations
- 2. [+ New registration]

3. Enter App Info

Note: Admin access is required for the user/service account who is setting up the Azure App. The user role in Azure should be "Application Administrator"

	E Microsoft Azure > Search resources, services, and docs (G+/)	
	Home > App registrations >	_
	Register an application	×
	* Name	^
	The user-facing display name for this application (this can be changed later).	
1	Microsoft Power BI Documentation Example	
	Supported account types	
	Who can use this application or access this API?	- 1
2	• Accounts in this organizational directory only (mi only - Single tenant)	- 1
9	Accounts in any organizational directory (Any Azure AD directory - Multitenant)	- 1
	O Accounts in any organizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)	- 1
	Personal Microsoft accounts only	
	Help me choose	
	Redirect URI (optional)	
	We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.	
3	Web V https:// .com/editor/service/validatepowerbioauth	~
	By proceeding, you agree to the Microsoft Platform Policies 🖻	
4	Register	

- 1. Enter the App's Name
- Supported account types: "Accounts in this organizational directory only (<directory name> only - Single tenant)"
- 3. Redirect URI: select Web, enter https://<MI hostname>.com/editor/service/ validatepowerbioauth
- 4. [Register]

4. Enable Public Client Flows

Once the application has been registered, please enable Public Client Flows under the Authentication tab. This step is only required when using Password
 Authentication - it is not required for Oauth. Public Flows are what allows third party apps (like MI) to get a token using username and password (enabling Metric Insights to get a token by itself).

If this is not enabled, the only way to get a token is via user interaction in a browser and there is no existing functionality using Password auth to get a token via user interaction in MI. This is the only option for native applications like MI

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	App instance property lock () Configure the application instance modification lock. Learn more ?	onfigure
 Manifest Support + Troubleshooting Troubleshooting New support request 	Allow public client flows ① Enable the following mobile and desktop flows: • App collects plaintext password (Resource Owner Password Credential Flow) Learn more 2 • No keyboard (Device Code Flow) Learn more 2 • SSO for domain incircul Windows (Integrated Auth Flow) Learn more 2	No
Roles and administrators	Advanced settings	
App roles	▲ Due to temporary differences in supported functionality, we don't recommend enabling personal Microsoft accounts for an existing registration. If you need to enable personal accounts, you can do so using the manifest editor. Learn more about these restrictions.	t t
API permissions Expose an API	Help me decide	
Certificates & secrets Token configuration	 Accounts in this organizational directory only (m) only - Single tenant) Accounts in any organizational directory (Any Azure AD directory - Multitenant) 	
Authentication	Who can use this application or access this API?	

5. Add Power BI Service Permissions

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Home > App registrations > Microsoft	t Power BI Documentation Example	Request API permissions ×				
Microsoft Power BI Search «	Documentation Example API permiss	Microsoft Dynamics 365 Export data from Microsoft Dynamics CBM opparization to an external	Central Programmatic access to data and functionality in Dynamics 365 Business	s to data and mice 265 Buildings of CRM business		
		destination	Central	sonnaic and circ systems		
Quickstart Integration assistant	The "Admin consent required" column shows the default value for a organizations where this app will be used. Learn more	Flow Service	Office 365 Management APIs	N OneNote		
Manage	Configured permissions	Embed flow templates and manage	Retrieve information about user, admin,	Create and manage notes, lists,		
 Branding & properties Authentication 	Applications are authorized to call APIs when they are granted permis all the permissions the application needs. Learn more about permission	nows	system, and policy actions and events from Office 365 and Azure AD activity logs	notebooks		
Certificates & secrets Token configuration	2 + Add a permission	Power BI Service	SharePoint	Skype for Business		
-> API permissions	APT/ Permissions name Type Description	Programmatic access	Interact remotely with SharePoint data	Integrate real-time presence, secure		
Expose an API	User Read Delenated Sign in and read	as Datasets, Tables, and Rows in Power		capabilities		
👪 App roles	ecconce Sign in ono reco				_	
		Proper Bi Service Proprimary invariant and one shapponent biology (* Docs of the providence of the source application needs to "Cost application" (Cost application needs to "Cost application") (Cost applicatin") (Cost application") (Cost a				
		√ App (1)				
		App.Read.All ③ View all Power BI apps		No		
		> Capacity				
		> Content				
		Dashboard (1)				

• **Note**: Delegated permissions allow the application to access the API as the signed-in user.

- 1. Access API Permissions tab
- 2. [+ Add a permission]
- 3. [Power Bl Service]
- 4. [Delegated permissions]
- 5. Enable the following permissions to get a list of all Power BI Apps, Dashboards, Datasets, Reports, and Workspaces respectively:
 - App:
 - App.Read.All
 - Dashboard:
 - Dashboard.Read.All
 - Dataset:
 - Dataset.Read.All
 - Report:
 - Report.Read.All
 - Workspace:
 - Workspace.Read.All
- 6. [Add permissions]

6. Grant Admin Consent

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Home > Microsoft Power BI Documentation Example										
Microsoft Power BI Documentation Example API permissions * ··· ×										
♀ Search «	🕐 Refresh 🕴 🛜 Got feedb	ack?								
Overview	Grant admin consent con	firmation.				^				
🗳 Quickstart	4 Quickstart Do you want to grant consent for the requested permissions for all accounts in mi? This will update any existing admin consent records this application already has to match what is listed below.									
🚀 Integration assistant	1 Integration assistant No									
Manage	Configured permissions	•								
Branding & properties	Branding & properties Applications are authorized to catAPIs when they are granted permissions by users/admins as part of the consent process. The list of configured permissions should include									
Authentication	Authentication Authentication									
📍 Certificates & secrets	ficates & secrets + Add a permission Grant admin consent for mi									
Token configuration	API / Permissions name	Туре	Description	Admin consent requ St	atus					
API permissions	✓ Microsoft Graph (1)									
Expose an API	User.Read	Delegated	Sign in and read user profile	No						
App roles	✓ Power BI Service (5)									
🎒 Owners	App.Read.All	Delegated	View all Power BI apps	No						
and administrators	Dashboard.Read.All	Delegated	View all dashboards	No						
11 Manifest	Dataset.Read.All	Delegated	View all datasets	No	•••					
Support + Troubleshooting	Report.Read.All	Delegated	View all reports	No	•••					

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- 1. [Grant admin consent for <directory name>]
- 2. **[Yes]**

7. Install the Remote Data Processor

For steps on how to install the RDP, refer to Configure a Remote Data Processor.

- If you are using AD, you may want to run the RDP service as an AD service account:
 - Access Services > Metric Insights Data Processor Daemon > Properties > Log On, select AD service account

8. .NET and Excel Adapter Must Be Installed on the RDP Host Machine



- RDP requires .NET FrameWork v4.5 or higher.
- Microsoft Power BI Datasets can only be fetched by the Metric Insights plugin with the corresponding *Excel adapter (OLEDB adapter)*.



When you select **Analyze in Excel** from the **Ellipses menu (the ...)** associated with a dataset or report, Power BI creates an .msi file and downloads it from the browser to your computer. Open the downloaded **SQL_AS_OLEDB.msi** file and install the adapter.

Learn more about <u>Analyze in Excel</u>.

To download the Excel adapter:

- 1. Go to the Ellipses menu
- 2. Click Analyze in Excel

Install the adapter tool as prompted.

9. Create a Power BI Cloud Connection Profile in Metric Insights

Now that you have completed the prerequisites, you are ready to create a connection profile in Metric Insights.

• Follow the steps in Establish Connectivity to Microsoft Power BI Cloud article to complete the integration.