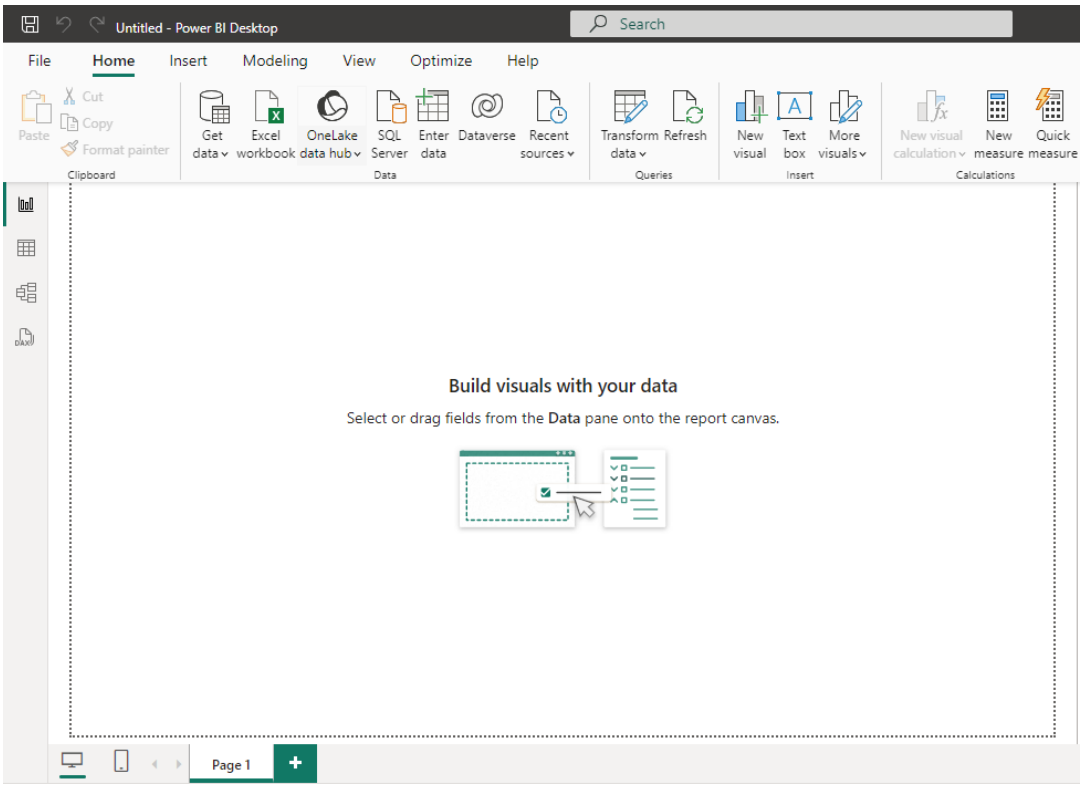
Chapter-2 Importing Data in Microsoft Power BI

Importing data into Power BI is the first step in creating reports and dashboards. Power BI supports a wide range of data sources, both on-premises and cloud-based, ensuring flexibility in connecting to almost any type of data.

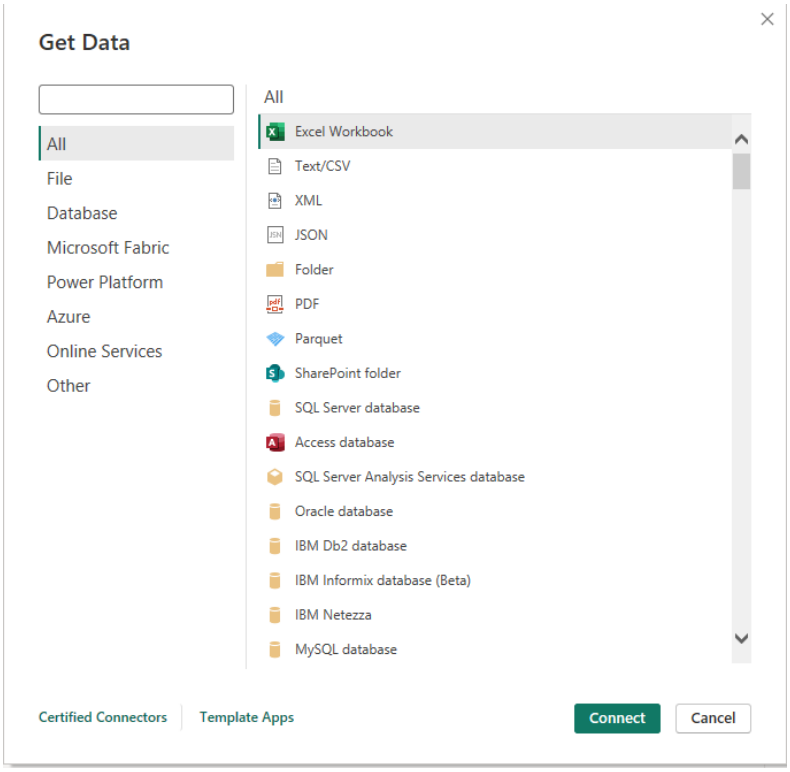
Steps to Import Data in Power BI Desktop

1. **Launch Power BI Desktop**



Open Power BI Desktop on your computer.

2. **Choose a Data Source**
   - Click on the **Home** tab.
   - Select **Get Data** from the ribbon.



- A list of popular data sources appears (e.g., Excel, SQL Server, Web, etc.).
- If your data source is not listed, click on **More...** to view the complete list.

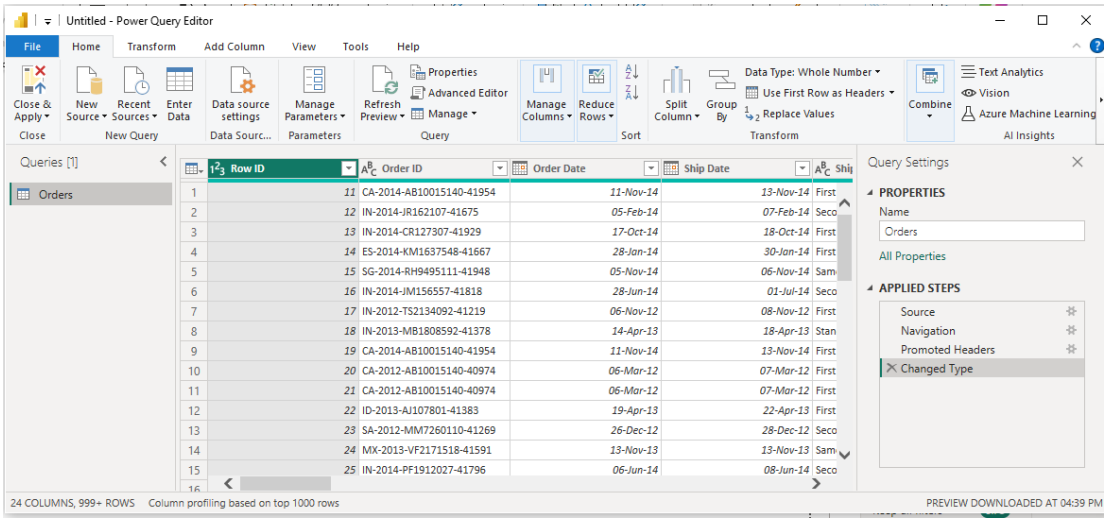
3. **Connect to the Data Source**
   - After selecting the desired data source, provide the required connection details.
   - For example:
     - For Excel: Choose the file path.
     - For SQL Server: Provide the server name, database name, and authentication credentials.
     - For Web: Enter the URL of the data.
4. **Preview and Load Data**
   - After connecting to the source, Power BI displays a preview of the data.
   - You can select specific tables or sheets to import.
   - Click **Load** to import the data directly, or click **Transform Data** to modify it in Power Query before loading.

Supported Data Sources in Power BI

1. **File-Based Sources**
   - Microsoft Excel (.xls, .xlsx)
   - CSV files
   - JSON files
   - XML files
   - PDFs

2. **Database Sources**
    - SQL Server
    - MySQL
    - PostgreSQL
    - Oracle
    - Azure SQL Database
3. **Online Services**
    - SharePoint Online
    - Google Analytics
    - Salesforce
    - Dynamics 365
4. **Other Sources**
    - REST APIs
    - Web pages
    - OData feeds
    - Azure Blob Storage
    - Hadoop

Using Power Query for Data Transformation



Before loading data, Power Query allows you to:

- **Clean Data:** Remove null values, duplicates, or unnecessary columns.
- **Transform Data:** Apply operations such as merging, splitting, or aggregating columns.
- **Combine Data:** Merge or append data from multiple sources.
- **Add Calculated Columns:** Create custom columns using formulas.

Best Practices for Importing Data

1. **Select Only Necessary Data:** Avoid importing excessive tables or rows to optimize performance.
2. **Use Appropriate Data Types:** Ensure columns are assigned correct data types during import.
3. **Maintain Clean Data Sources:** Clean and structure your data at the source to simplify transformations in Power BI.
4. **Use Folders for File Connections:** For regularly updated data, connect to a folder containing all related files.

Import Modes in Power BI

1. **Import Mode:**
    - Data is imported and stored in Power BI's in-memory model.
    - Offers fast performance but may have size limitations.
2. **DirectQuery Mode:**
    - Queries data directly from the source without importing.
    - Suitable for large datasets but may have slower performance.
3. **Live Connection:**
    - Used for connecting to SQL Server Analysis Services or Power BI Service datasets.
    - Provides real-time data updates.
4. **Hybrid Mode (Composite Models):**
    - Combines Import Mode and DirectQuery in a single report.

Importing Data Example: Connecting to Excel

1. Click **Get Data → Excel Workbook.**
2. Browse and select the file.
3. Choose the sheets or tables to load.
4. Transform the data if needed using Power Query.
5. Click **Close & Apply** to load data into Power BI.

Mastering data import in Power BI is essential for effective data analysis and visualization. With its wide range of connectors and transformation tools, Power BI makes it easy to work with data from diverse sources.