



Exploring DirectQuery and Live Connection

Section 1: Learn

What is DirectQuery and Live Connection in Power BI?

Power BI provides two methods to connect to data sources without importing data:

1. **DirectQuery** – Fetches data from the source in real-time, without storing it in Power BI.
2. **Live Connection** – Similar to DirectQuery but works specifically with SQL Server Analysis Services (SSAS) and Azure Analysis Services.

Why Use DirectQuery or Live Connection?

- **Real-Time Data Access:** Ensures users see the latest data without manual refresh.
- **Reduces Storage Requirements:** Since data is not imported, it does not take up space in Power BI.
- **Handles Large Datasets:** Ideal for large databases where importing data is impractical.
- **Minimizes Data Redundancy:** Ensures a single source of truth by always retrieving live data.



Key Differences Between DirectQuery and Live Connection

Feature	DirectQuery	Live Connection
Data Storage	No data stored in Power BI	No data stored in Power BI
Supported Sources	SQL Server, Oracle, PostgreSQL, etc.	SSAS, Azure Analysis Services
Data Refresh	Fetches data when interacting with visuals	Fetches data in real time
Performance	Slightly slower due to query execution	Faster as it connects to pre-aggregated models
Data Modeling	Can modify and create new measures	No modifications allowed

How Does DirectQuery and Live Connection Work?

1. *Connect to a Data Source → Choose DirectQuery or Live Connection while connecting.*
2. *Build Reports → Create visualizations just like in Import Mode.*
3. *Interact with Reports → Power BI queries the data source in real time when filters or visuals are adjusted.*



4. *Ensure Performance* → *Optimize queries and reduce unnecessary filtering to speed up response times.*

A Brief History

DirectQuery and Live Connection were introduced to solve the limitations of Import Mode, which required frequent data refreshes. These options enable real-time business intelligence, reducing dependency on static datasets.

Section 2: Practice

Step-by-Step Guide to Using DirectQuery

Step 1: Connecting to a Database Using DirectQuery

1. *Open Power BI Desktop.*
2. *Click Get Data → Select a database source (e.g., SQL Server, PostgreSQL).*
3. *Enter server details and select DirectQuery.*
4. *Click Load to start using live data.*

Step 2: Creating a Report with DirectQuery

1. *Drag and drop fields to create a bar chart.*
2. *Apply filters and slicers to interact with the data.*



3. Notice that data updates in real-time as filters are applied.

Step 3: Using Live Connection with SSAS

1. Click **Get Data** → **Choose Analysis Services**.
2. Enter the server name and select **Live Connection**.
3. Select the appropriate data model and click **Connect**.
4. Build reports using the existing SSAS model.

Example: Live Monitoring of Sales Data

1. Connect Power BI to a real-time sales database using DirectQuery.
2. Create a dashboard showing total sales by region.
3. Apply slicers to filter sales based on date ranges.
4. Monitor live data changes as new sales are recorded in the database.

Section 3: Know More

Frequently Asked Questions

1. When should I use DirectQuery instead of Import Mode?

Use DirectQuery when working with large datasets that change frequently, or when you need real-time updates.



2. Can I create calculated columns in DirectQuery?

No, DirectQuery does not support calculated columns but allows creating measures using DAX.

3. Why is my DirectQuery report slow?

- Complex queries may slow down performance.*
- Too many visuals can overload the data source.*
- Optimize database indexing and avoid excessive filtering.*

4. How is Live Connection different from DirectQuery?

- Live Connection works only with SSAS and Azure Analysis Services.*
- DirectQuery works with multiple relational databases.*

5. Can I refresh data manually in DirectQuery?

No, DirectQuery automatically retrieves the latest data whenever a report is opened or filters are changed.

6. Is DirectQuery available for all data sources?

No, DirectQuery is supported for SQL Server, Oracle, PostgreSQL, Snowflake, and some other relational databases.



These notes will help you understand DirectQuery and Live Connection, ensuring you can choose the best data connectivity mode for real-time Power BI reports!