



Connecting to On-premises SQL Server Database Using Gateway

Section 1: Learn

What is a Power BI Gateway?

A **Power BI Gateway** is a bridge that allows Power BI to connect to **on-premises databases** securely. When using an **on-premises SQL Server database**, a gateway ensures that **data can be accessed, refreshed, and updated in Power BI Service without moving it to the cloud.**

Why Use a Gateway to Connect to SQL Server?

- **Secure Data Access:** Keeps data within the company's network while allowing Power BI to retrieve insights.
- **Automatic Data Refresh:** Ensures reports stay updated with real-time or scheduled refreshes.
- **Avoids Manual Uploading:** No need to re-upload data manually; Power BI fetches it automatically.
- **Supports Multiple Users:** Allows teams to work on **shared reports** using live **on-premises data**.

Types of Power BI Gateways

Gateway Type	Description
Personal Mode	Meant for individual use; runs as a background process.
Standard Mode	Allows multiple users to access and refresh datasets from a shared database.



How Does a Gateway Work with SQL Server?

1. **Install the Gateway** → Download and install **Power BI Gateway** on a system connected to SQL Server.
2. **Register the Gateway** → Log in with a Power BI account and configure settings.
3. **Connect to SQL Server** → Define the connection using **server name, database name, and credentials**.
4. **Publish Reports to Power BI** → Power BI Service will **use the gateway** to fetch live or scheduled data updates.

A Brief History

Before Power BI Gateways, users had to **manually export and upload SQL Server data** to Power BI. In **2016**, Microsoft introduced the **On-premises Data Gateway**, which revolutionized **secure cloud connectivity for business intelligence**.

Section 2: Practice

Step-by-Step Guide to Connecting Power BI to SQL Server Using a Gateway

Step 1: Installing Power BI Gateway

1. Download **Power BI Gateway** from [Microsoft's official website](https://powerbi.microsoft.com/en-us/downloads/).
2. Run the installer and choose **Standard Mode** (recommended for teams).
3. Sign in with your **Power BI account** and register the gateway.

Step 2: Configuring the Gateway for SQL Server

1. Open Power BI Service (<https://app.powerbi.com>).
2. Go to **Settings > Manage Gateways**.



3. Click **Add Data Source** and enter:
 - **Server Name** (e.g., **DESKTOP-SQL01** or **192.168.1.10**)
 - **Database Name** (e.g., **SalesDB**)
 - **Authentication Type** (Windows or SQL Server Authentication)
4. Click **Apply** to save the connection.

Step 3: Using SQL Server Data in Power BI

1. Open **Power BI Desktop** and click **Get Data**.
2. Select **SQL Server Database** and enter the server and database name.
3. Choose **DirectQuery** to keep data live or **Import** to store it locally.
4. Load data into **Power BI reports and visualizations**.
5. Publish the report to **Power BI Service** to enable auto-refresh.

Example: Live Sales Reporting Using SQL Server Gateway

1. Install Power BI Gateway on a server with SQL Server access.
2. Connect to a sales database containing orders, customers, and revenue.
3. Create a dashboard in Power BI showing total revenue and order trends.
4. Publish the dashboard to Power BI Service.
5. Set up scheduled refresh to update sales reports every 4 hours.

Section 3: Know More

Frequently Asked Questions

1. Do I need a gateway for cloud databases like Azure SQL?

No, a gateway is required **only for on-premises databases**. Cloud databases like **Azure SQL** connect directly.



2. Can multiple users access the same gateway?

Yes! **Standard Mode Gateways** allow multiple users to connect and refresh reports.

3. What happens if the gateway server goes offline?

Scheduled refreshes **fail** until the gateway is back online. Power BI will show an error in **refresh history**.

4. Can I install multiple gateways on one machine?

No, **only one gateway instance** can be installed per machine.

5. How frequently can I refresh data using a gateway?

- Power BI Pro users: Up to **8** refreshes per day.
- Power BI Premium users: Up to **48** refreshes per day.

6. Is the Power BI Gateway free?

Yes, but **some advanced features** require a Power BI Pro or Premium license.

These notes will help you **set up and use Power BI Gateway for SQL Server**, ensuring **secure and automatic data updates** for Power BI reports!