

5.2. Student Handout

Power BI Data Refresh and Scheduling: Student Handout

Introduction to Data Refresh

Data Refresh is the process of updating the data in Power BI reports and dashboards to reflect the most current information from your data sources.

Types of Data Refresh: Import vs DirectQuery

1. **Import Mode:** Power BI takes a snapshot of your data and stores it in its own memory. You need to refresh the report to see updated data.
 - Example 1: A weekly sales report that updates every Monday.
 - Example 2: Monthly financial statements refreshed at the start of each month.
 - Example 3: Quarterly inventory reports refreshed at the end of each quarter.
2. **DirectQuery Mode:** Power BI directly queries the data source every time you interact with the report, providing real-time data.
 - Example 1: A live dashboard showing current stock prices.
 - Example 2: Real-time monitoring of website traffic.
 - Example 3: Instant updates on customer support ticket status.

Configuring Data Refresh Schedules for Imported Data

To set up a refresh schedule for imported data:

1. Go to the **Power BI Service**.
2. Open your dataset.
3. Under **Settings**, set up a **Scheduled Refresh**.
4. Specify the frequency and time for the refresh.
 - Example 1: Daily refresh at 9 AM for a sales report.
 - Example 2: Hourly refresh for a social media analytics dashboard.
 - Example 3: Weekly refresh for a project status report.

Setting Up Gateway Connections for On-Premises Data Sources

For on-premises data, use the **Power BI Gateway** to connect Power BI to your internal data sources.

Installing and Configuring Power BI Gateway

1. **Download the Gateway** from the Power BI website.
 2. **Install the Gateway** on a machine with access to your data sources.
 3. **Configure the Gateway** with your Power BI account and data sources.
 4. **Add the Gateway in Power BI Service** to refresh your datasets.
- Example 1: Connecting to an internal SQL Server database.
 - Example 2: Accessing an on-premises Excel file.
 - Example 3: Linking to a local SharePoint list.

Managing Data Refresh in Power BI Service

In the Power BI Service, you can:

- **View the refresh history** to check when data was last refreshed.
- **Manually trigger a refresh** for immediate updates.
- **Modify the refresh schedule** as needed.
- Example 1: Checking refresh logs for a marketing dashboard.
- Example 2: Manually refreshing a report before a meeting.
- Example 3: Adjusting the refresh schedule for a seasonal sales report.

Monitoring Refresh Status and Troubleshooting Issues

Monitor the **Refresh History** log for:

- **Successful refreshes:** Marked with a green checkmark.
- **Failed refreshes:** Marked with a red cross, with error messages provided.

Common issues include:

- **Gateway connection problems.**
- **Data source authentication errors.**
- Example 1: Resolving a failed refresh due to expired credentials.
- Example 2: Fixing a gateway connection issue.

- Example 3: Addressing a data source permission error.

Hands-On: Automating Data Refresh and Scheduling in Power BI

1. **Upload a dataset** to Power BI Service.
2. **Set up a refresh schedule** for daily updates.
3. **Install a Gateway** for on-premises data.
4. **Monitor the refresh** to ensure data updates.

- Example 1: Automating refresh for a daily sales report.
- Example 2: Setting up a gateway for an internal HR database.
- Example 3: Monitoring refresh status for a financial dashboard.

Best Practices for Maintaining Up-to-Date Reports

1. **Set an appropriate refresh frequency.**
2. **Monitor refresh failures** regularly.
3. **Use DirectQuery for real-time data** when needed.
4. **Optimize your data model** to improve refresh times.

- Example 1: Reducing refresh frequency for static data.
- Example 2: Using DirectQuery for a live operations dashboard.
- Example 3: Removing unnecessary columns to speed up refresh.

Conclusion

- **Data Refresh** keeps your Power BI reports updated with the latest data.
- Choose between **Import Mode** and **DirectQuery Mode** based on your needs.
- Set up **scheduled refreshes** for imported data.
- Use a **Power BI Gateway** for on-premises data sources.
- Regularly monitor and troubleshoot refresh issues to ensure smooth operation.

For further questions or clarification, feel free to reach out!