Lab: Create a mirroring of Azure SQL Database in Microsoft Fabric

Objective:

To create a mirrored Azure SQL Database, which creates a read-only, continuously replicated copy of your Azure SQL Database data in OneLake

Prerequisite:

- The source Azure SQL Database can be either a single database or a database in an elastic pool. (Pricing Tier: Standard 100 DTU)
- You need an existing capacity for Fabric.
- Fabric tenant settings are enabled.
    - Service principals can use Fabric APIs
    - Users can access data stored in OneLake with apps external to Fabric
- Enable System Assigned Managed Identity (SAMI) of your Azure SQL logical server
- Database principal for Fabric

Tasks:

1. Use a login and mapped database user
2. Create a mirrored Azure SQL Database

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Task 1: Use a login and mapped database user (Optional)

1. Connect to your Azure SQL logical server using SQL Server Management Studio (SSMS) or Azure Data Studio. (server33x.database.windows.net)

2. Connect to the master database. Create a server login and assign the appropriate permissions.

3. Create a SQL Authenticated login named fabric_login. You can choose any name for this login. Provide your own strong password. Run the following T-SQL script in the master database:

   (Optional)
   ```
   CREATE LOGIN [fabric_login] WITH PASSWORD = 'Pa55w.rd@123';
   ALTER SERVER ROLE [##MS_ServerStateReader##] ADD MEMBER [fabric_login];
   ```

   Or, log in as the Microsoft Entra admin, and create a Microsoft Entra ID authenticated login from an existing account. Run the following T-SQL script in the master database:

   ```
   CREATE LOGIN [<username>@DataclientsCToutlook.onmicrosoft.com] FROM EXTERNAL PROVIDER;
   ALTER SERVER ROLE [##MS_ServerStateReader##] ADD MEMBER [<username>@DataclientsCToutlook.onmicrosoft.com];
   ```

4. Connect to the Azure SQL Database your plan to mirror to Microsoft Fabric, using the Azure portal query editor, SQL Server Management Studio (SSMS), or Azure Data Studio.

5. Connect to the user database that will be mirrored. Create a database user connected to the login and grant the minimum privileges necessary:

   For a SQL Authenticated login:

   (Optional)

   ```
   CREATE USER [fabric_login] FOR LOGIN [fabric_login];
   GRANT SELECT, ALTER ANY EXTERNAL MIRROR TO [fabric_login];
   ```

   Or, for a Microsoft Entra authenticated login:

   ```
   CREATE USER [<username>@DataclientsCToutlook.onmicrosoft.com] FOR LOGIN [bob@contoso.com];
   GRANT SELECT, ALTER ANY EXTERNAL MIRROR TO [<username>@DataclientsCToutlook.onmicrosoft.com];
   ```


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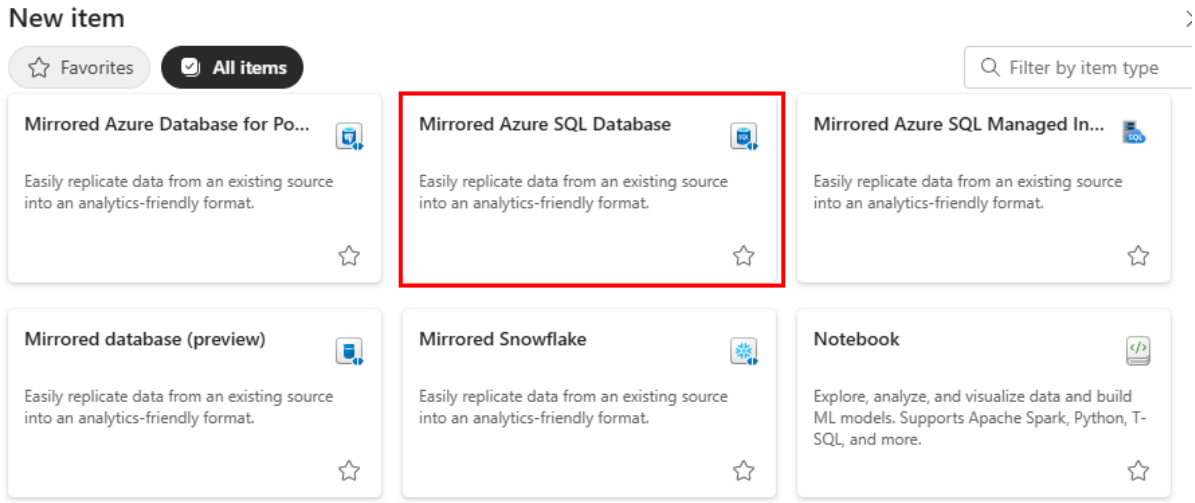
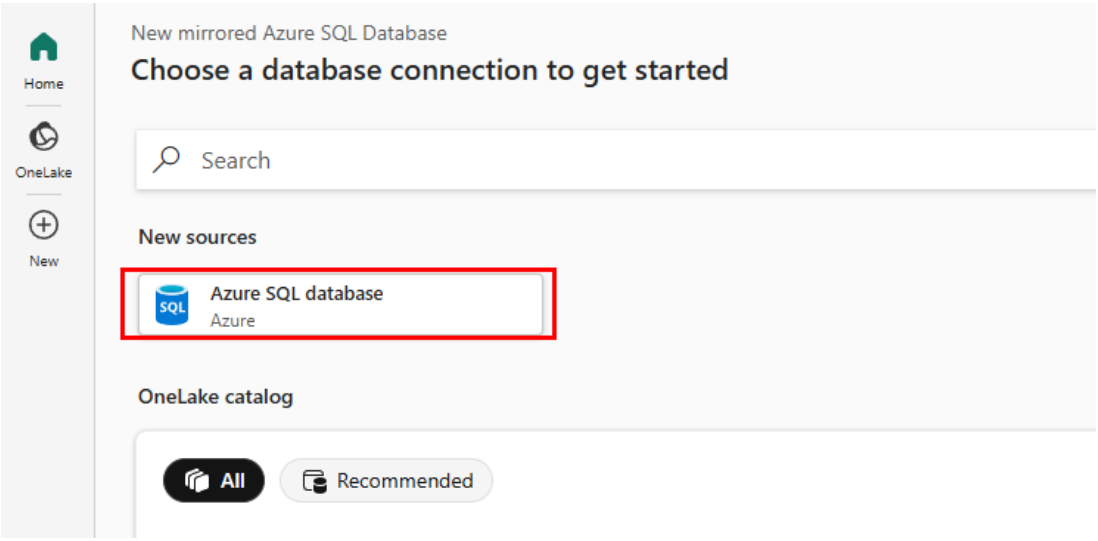
Task 2: Create a mirrored Azure SQL Database

1. Open the Fabric portal. (https://app.fabric.microsoft.com)
2. Use an existing workspace.
3. Select the Create icon **+ New item** and select Mirrored Azure SQL Database.



4. On Choose a database connection to get Started page, Select Azure SQL Database.



5. On New source, provide the following details

Connection settings

a. Server: server33x.database.windows.net

b. Database: sqldb

Connection credentials

c. Connection: Create new connection
d. Connection name: server33xsqldbxx (replace xx with a random number)

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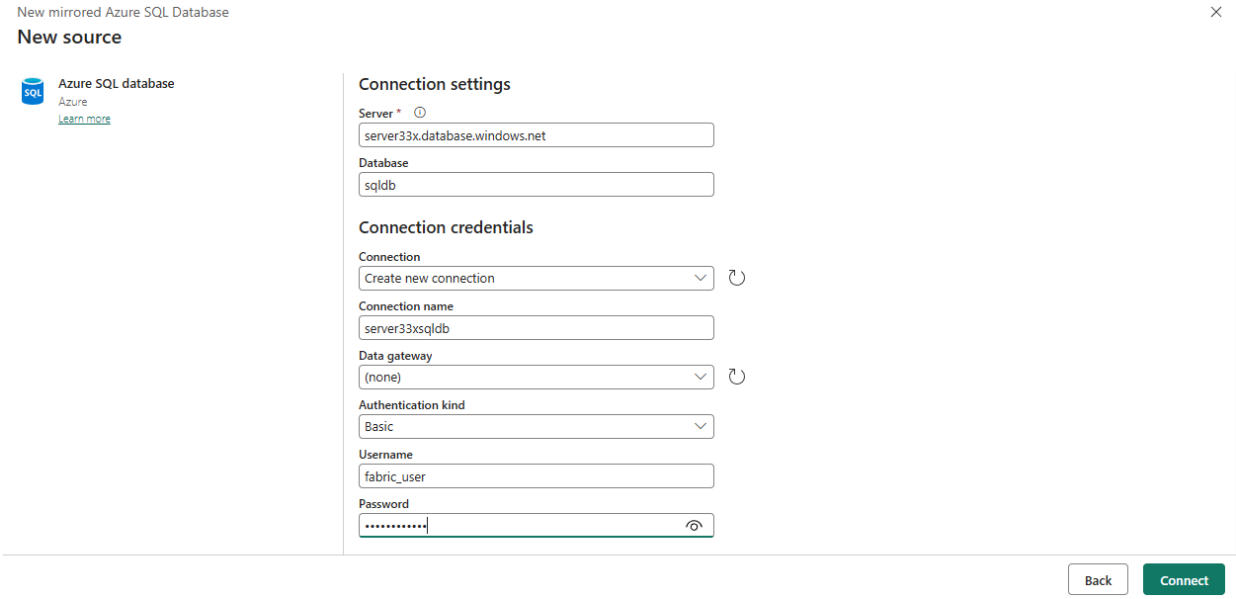
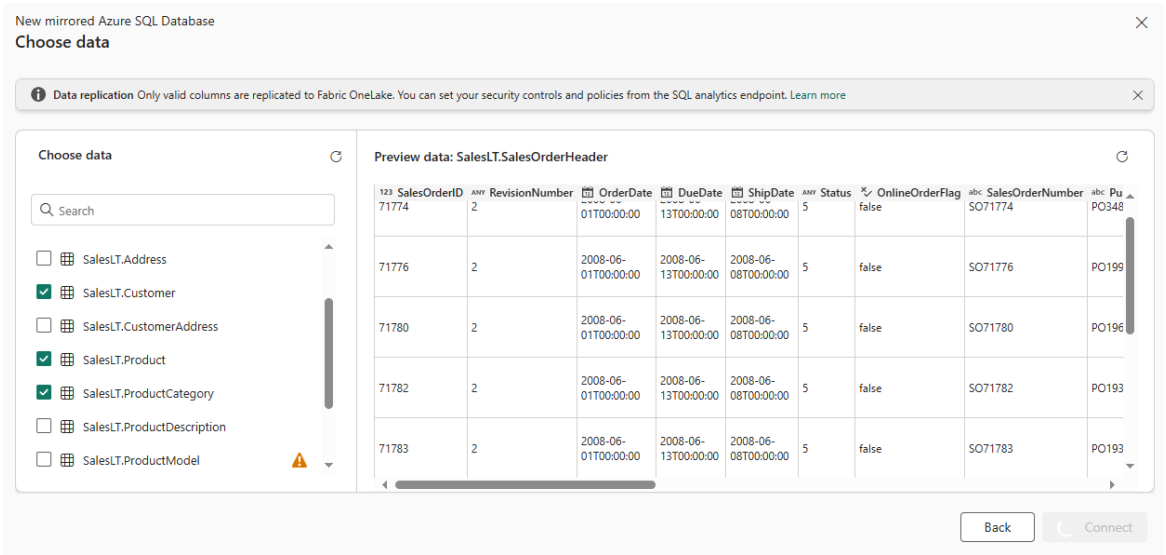
e. Data gateway: none
f. Authentication kind: Basic
g. Username: fabric_login
h. Password: Pa55w.rd@123



6. Select Connect.
7. The Configure mirroring screen allows you to mirror all data in the database, by default.

   Mirror all data means that any new tables created after Mirroring is started will be mirrored.

   Optionally, choose only certain objects to mirror. Disable the Mirror all data option, then select individual tables from your database.



8. Destination name: sqldb and select Create mirrored database. Mirroring begins.

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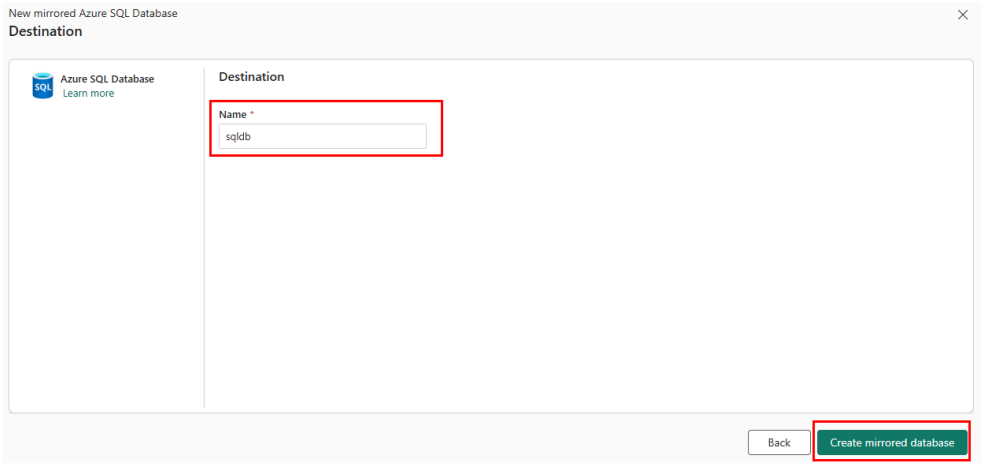
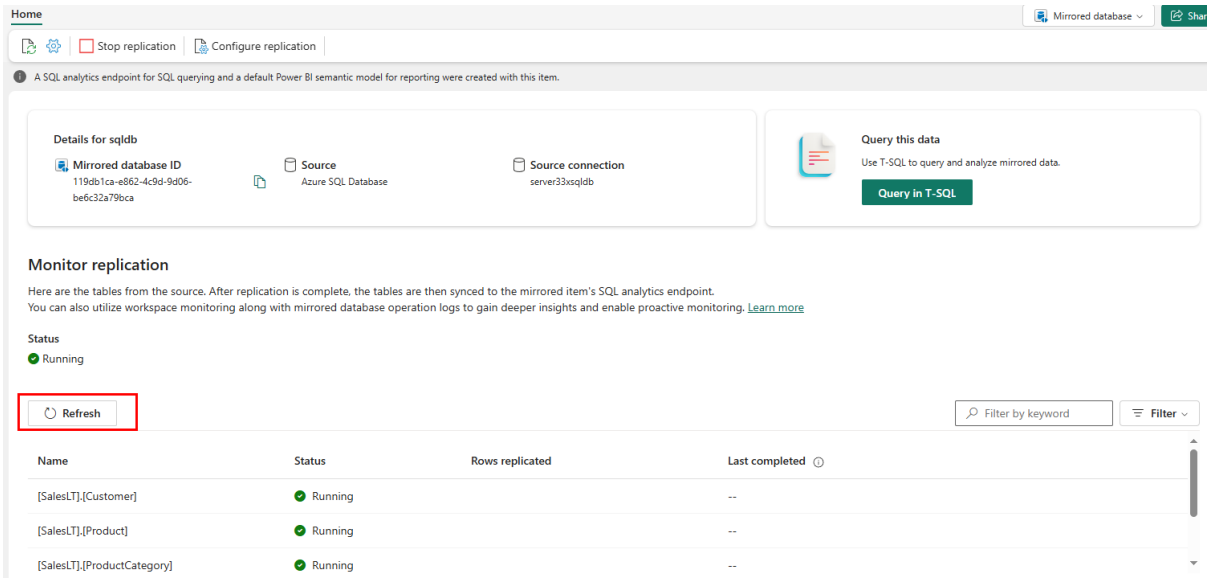


9. Wait for 2-5 minutes. Then, select Monitor replication to see the status.

   After a few minutes, the status should change to Running, which means the tables are being synchronized.

   If you don't see the tables and the corresponding replication status, wait a few seconds and then refresh the panel.



10. When they have finished the initial copying of the tables, a date appears in the Last refresh column.

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