

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

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)

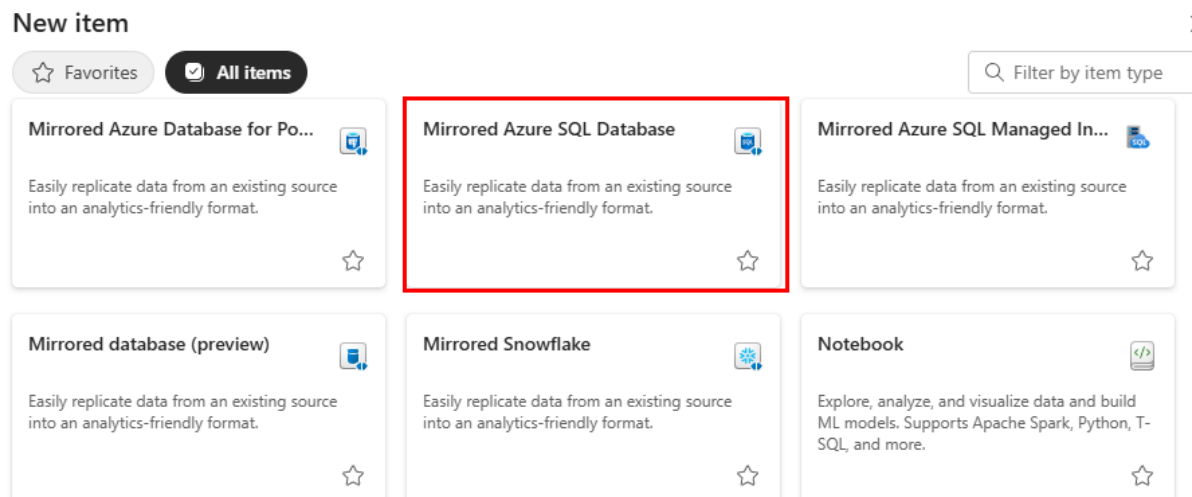
```
CREATE USER [fabric_login] FOR LOGIN [fabric_login];
GRANT SELECT, ALTER ANY EXTERNAL MIRROR TO [fabric_login];
```

Or, for a Microsoft Entra authenticated login:

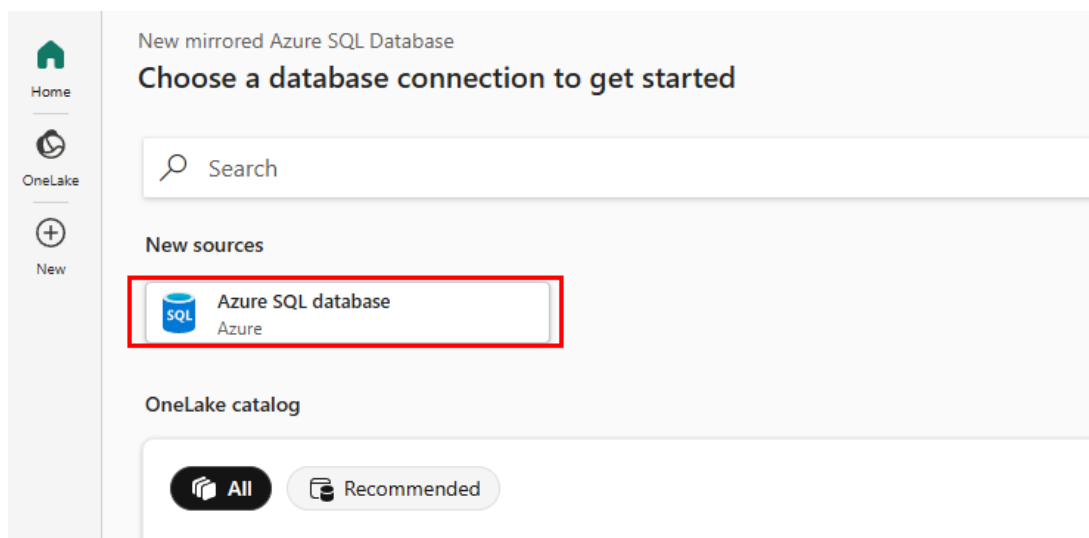
```
CREATE USER [<username>@DataclientsCToutlook.onmicrosoft.com] FOR LOGIN [bob@contoso.com];
GRANT SELECT, ALTER ANY EXTERNAL MIRROR TO [<username>@DataclientsCToutlook.onmicrosoft.com];
```

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)

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

New mirrored Azure SQL Database

New source

Azure SQL database

Azure

[Learn more](#)

Connection settings

Server *

server33x.database.windows.net

Database

sqlldb

Connection credentials

Connection

Create new connection

Connection name

server33xsqlldb

Data gateway

(none)

Authentication kind

Basic

Username

fabric_user

Password

Back

Connect

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.

New mirrored Azure SQL Database

Choose data

Data replication Only valid columns are replicated to Fabric OneLake. You can set your security controls and policies from the SQL analytics endpoint. [Learn more](#)

Choose data

Search

- ☐ SalesLT.Address
- ☒ SalesLT.Customer
- ☐ SalesLT.CustomerAddress
- ☒ SalesLT.Product
- ☒ SalesLT.ProductCategory
- ☐ SalesLT.ProductDescription
- ☐ SalesLT.ProductModel

Preview data: SalesLT.SalesOrderHeader

123 SalesOrderID	ANY RevisionNumber	OrderDate	DueDate	ShipDate	ANY Status	% OnlineOrderFlag	abc SalesOrderNumber	abc Pu
71774	2	01T00:00:00	13T00:00:00	08T00:00:00	5	false	SO71774	PO348
71776	2	2008-06-01T00:00:00	2008-06-13T00:00:00	2008-06-08T00:00:00	5	false	SO71776	PO199
71780	2	2008-06-01T00:00:00	2008-06-13T00:00:00	2008-06-08T00:00:00	5	false	SO71780	PO196
71782	2	2008-06-01T00:00:00	2008-06-13T00:00:00	2008-06-08T00:00:00	5	false	SO71782	PO193
71783	2	2008-06-01T00:00:00	2008-06-13T00:00:00	2008-06-08T00:00:00	5	false	SO71783	PO193


Back

Connect

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

New mirrored Azure SQL Database

Destination



Azure SQL Database
Learn more

Destination

Name *

sqldb

Back Create mirrored database

- 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.

Home

Mirrored database

Stop replication Configure replication

A SQL analytics endpoint for SQL querying and a default Power BI semantic model for reporting were created with this item.

Details for sqldb

Mirrored database ID
119db1ca-e862-4c9d-9d06-be6c32a79bca

Source
Azure SQL Database

Source connection
server33xsqldb

Query this data

Use T-SQL to query and analyze mirrored data.

Query in T-SQL

Monitor replication

Here are the tables from the source. After replication is complete, the tables are then synced to the mirrored item's SQL analytics endpoint. You can also utilize workspace monitoring along with mirrored database operation logs to gain deeper insights and enable proactive monitoring. [Learn more](#)

Status

Running

Refresh

Filter by keyword Filter

Name	Status	Rows replicated	Last completed
[SalesLT].[Customer]	Running		--
[SalesLT].[Product]	Running		--
[SalesLT].[ProductCategory]	Running		--

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