

# Step-by-Step Guide to Installing, Configuring and Running Azure Data Sync

With steps for: Azure SQL DB to on-premises SQL Server

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# 1 Disclaimer

This document is provided "as-is". Information and views expressed in this document, including URL and other Internet Web site references, may change without notice.

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## 2 Introduction

This document is meant to be used as a Quick Start Guide to synchronize data between Azure SQL Database and on-premises SQL Server. This is not meant to replace transactional replication, but rather provide an alternative to creating data flow processes that synchronize data between the Azure Cloud data platform, and client's on-premises databases.

More information about Azure Data Sync can be found on this link:  
<https://docs.microsoft.com/en-us/azure/sql-database/sql-database-data-sync-agent>

### 3 Document Revisions

| Rev No. | Author   | Date       | Comments      |
|---------|--|------------|---------------|
| 1       | Oscar Zamora<br><a href="mailto:oscar.zamora@microsoft.com">oscar.zamora@microsoft.com</a> | 06/13/2019 | First Release |
|         |  |            |               |
|         |  |            |               |
|         |  |            |               |

## 4 Steps

### 4.1 Data Sync Client Installation Considerations

Azure Data Sync requires a Sync hop (orchestrator node) that serves as an interaction point between the Azure Data Platform, and on-premises SQL Server instances.

The tool can be installed on an Azure VM, or within the source on-premises database server, or as a single node standing on clients' network.

Bandwidth and resources need to be taken into consideration, as the Sync hop will require to read from source and apply to the target database and depending on data volume, it might be constrained by bandwidth capabilities. It is also running as a service, within the windows machine, and that, will consume CPU and memory.

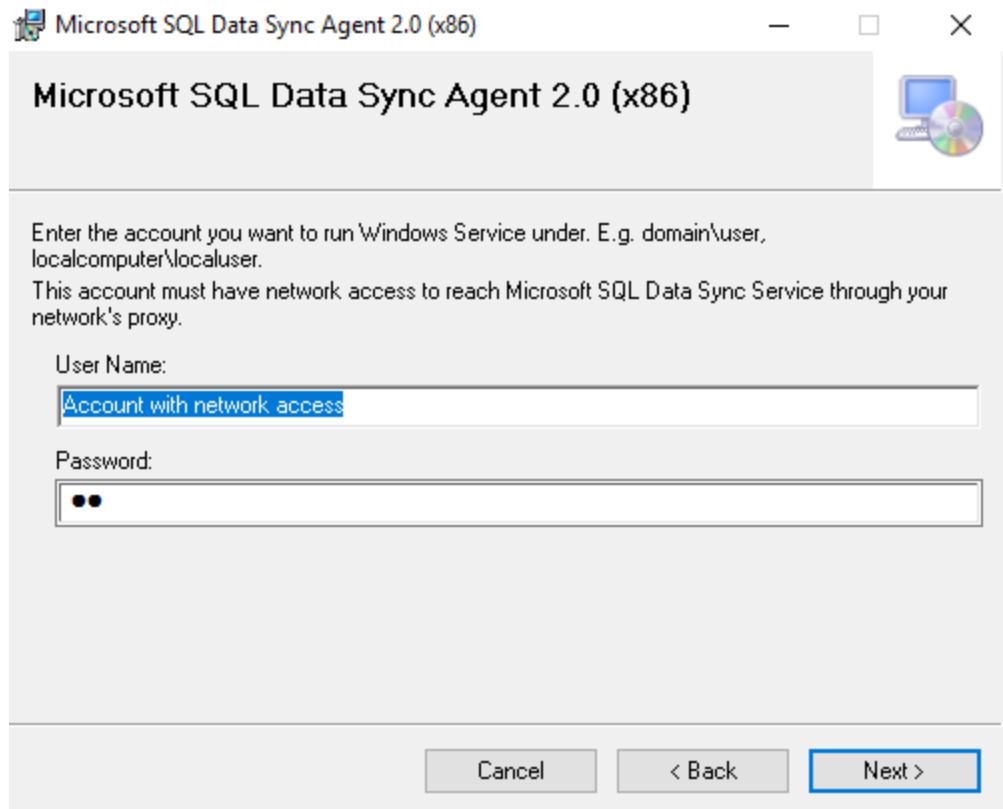
### 4.2 Download the tool

1. Download location: <https://www.microsoft.com/en-us/download/details.aspx?id=27693>
2. Install on your machine

### 4.3 Installation Steps

Data Sync Client will require to be installed as a service, and thus needs either a local or domain user that has capabilities to reach out to the Azure Data Service, and to the on-premises SQL Server instance(s):

- Local: {LOCALMACHINENAME}\{Username}
- Domain: {Domain}\{Username}

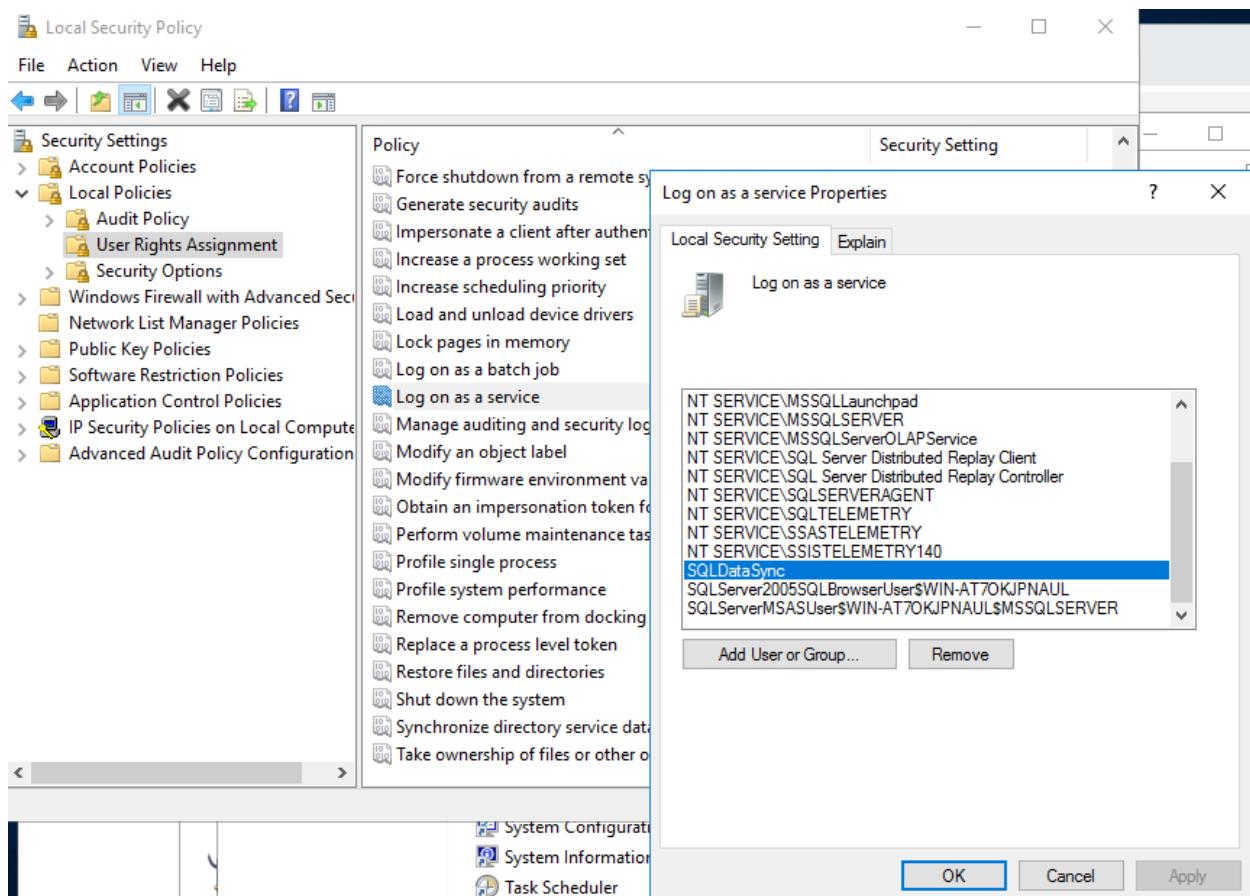


### 4.3.1 Scenario: Insufficient privileges to start system services

The user specified to install the Data Sync client requires privileges to start system services. In order to resolve this issue:

Grant log-on-as-a-service credentials to the user account:

1. Go to Start > Control Panel > Administrative Tools > Local Security Policy > Local Policies > User Rights Management.
2. Select Log on as a service.
3. In the Properties dialog box, add the user account.
4. Select Apply, and then select OK.
5. Close all windows.

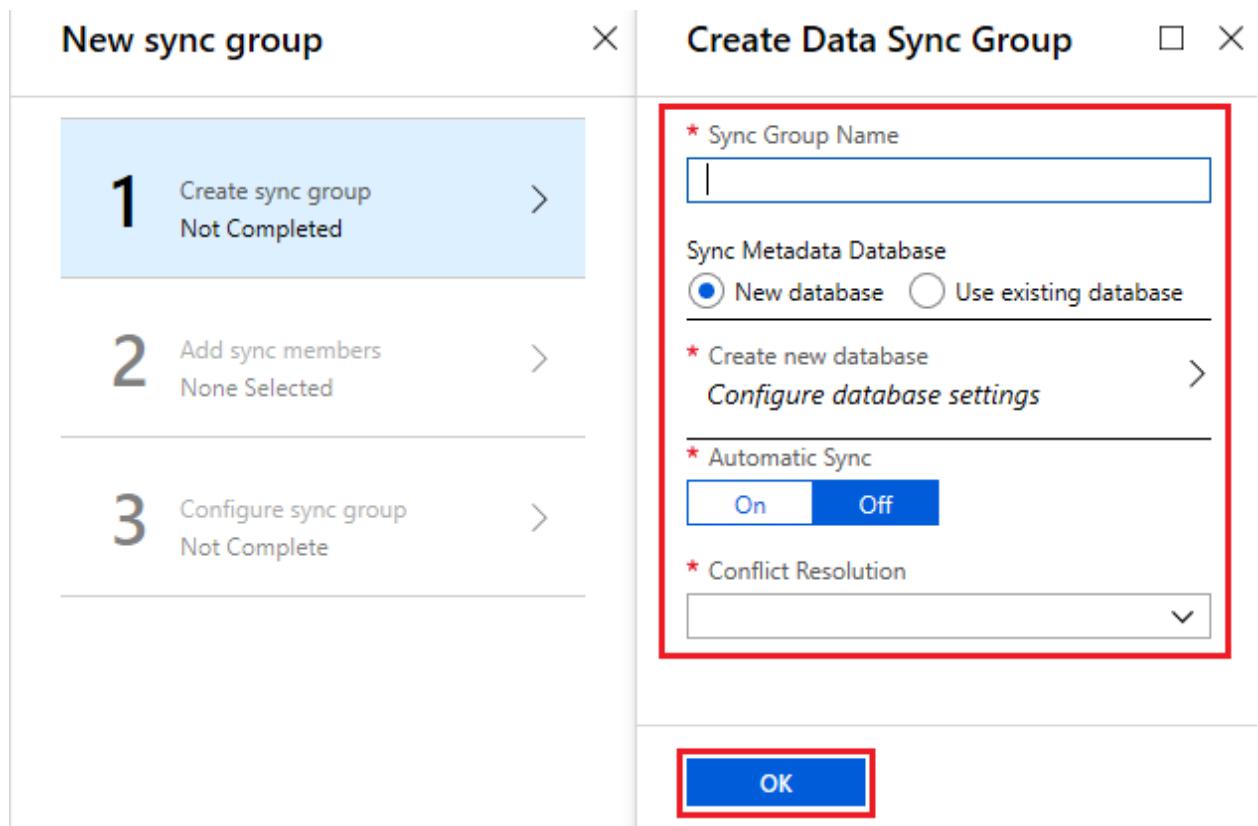


## 4.4 Create Sync Group

On the Azure portal. Locate your SQL database from the dashboard or, select the SQL databases icon on the toolbar and on the SQL databases page, select the database you want to use as the hub database for Data Sync.

The screenshot shows the Microsoft Azure portal interface. On the left, there's a sidebar with various icons, one of which is highlighted with a red box. The main area has a breadcrumb navigation path: Home > SQL databases > <database> - Sync to other databases. The left panel shows a list of SQL databases with a search bar and a 'Filter by name...' input field. A specific database entry, '<database>', is also highlighted with a red box. The right panel displays the 'Sync to other databases' configuration page. It includes sections for 'Sync Group' (which shows a message: 'You do not have any sync groups') and 'Sync Agent' (which shows a message: 'You do not have any agents'). A large red box highlights the 'Sync to other databases' link under the 'Settings' section. The top right corner shows the user's profile and the Microsoft logo.

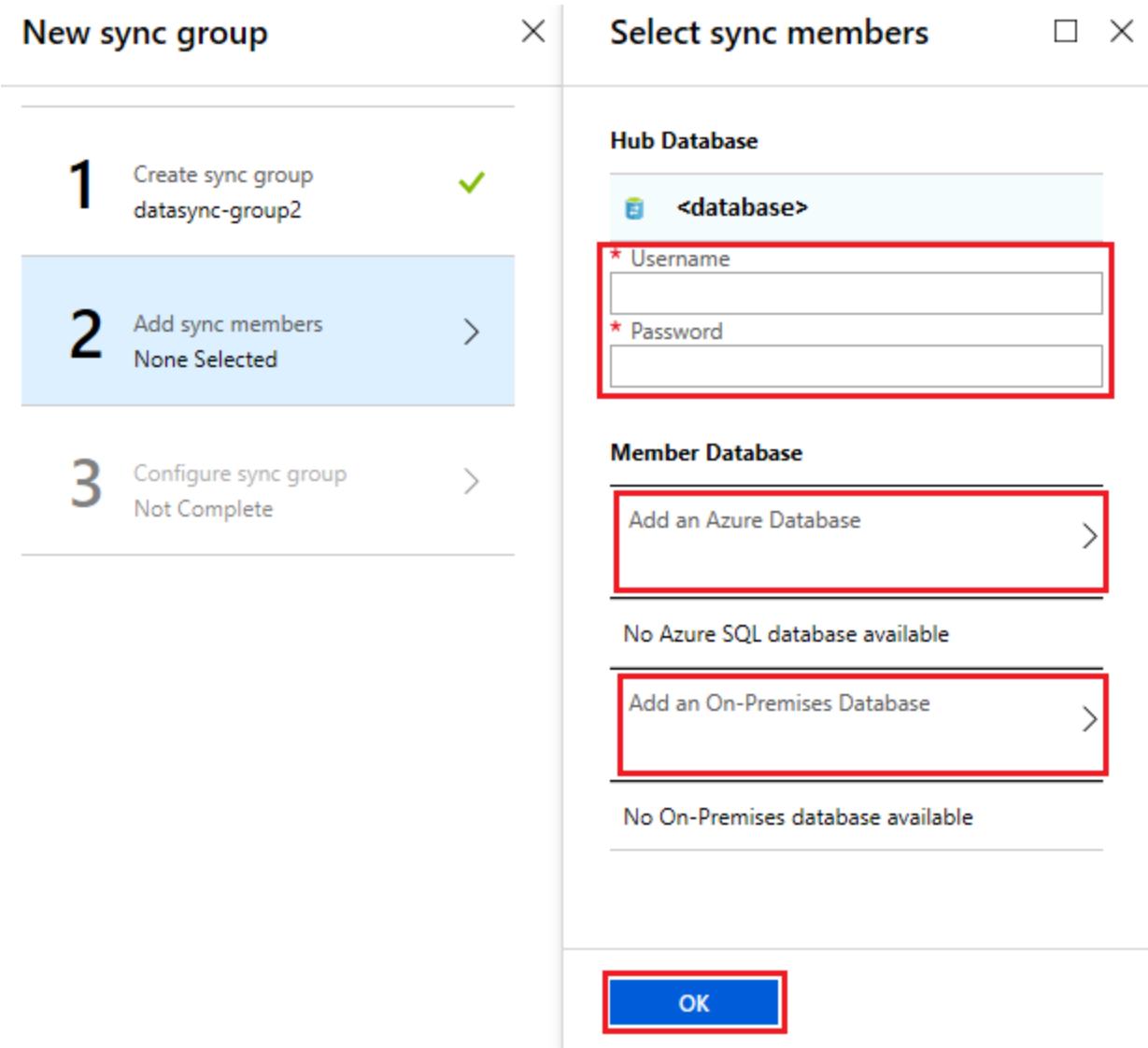
On the Sync to other databases page, select New Sync Group. Create it:



Fill in the information and choose the required options.

## 4.5 Add Sync Members

In this section, the hub database and the Azure SQL Database Member need to be specified:



## 4.6 Add the Azure SQL Database

On next step, specify the Azure SQL Database information

## Configure Azure Database □ ×

<databaseGroup>

\* Sync Member Name

\* Subscription

\* Azure SQL Server

\* Azure SQL Database

\* Sync Directions

\* Username

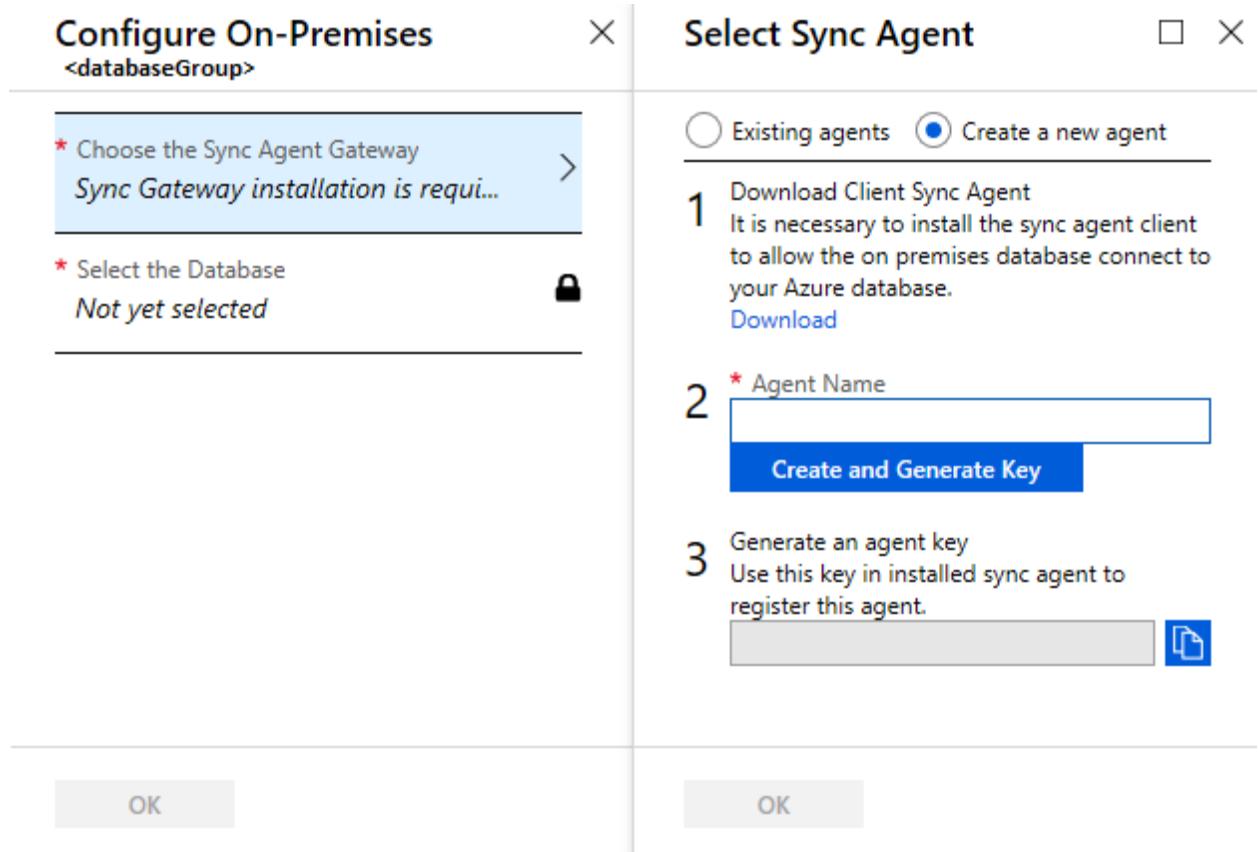
\* Password

**OK**

Wait for the deployment to be finalized.

## 4.7 Configuration to add on-premises SQL Server

In the Member Database section, select Add an On-Premises Database.

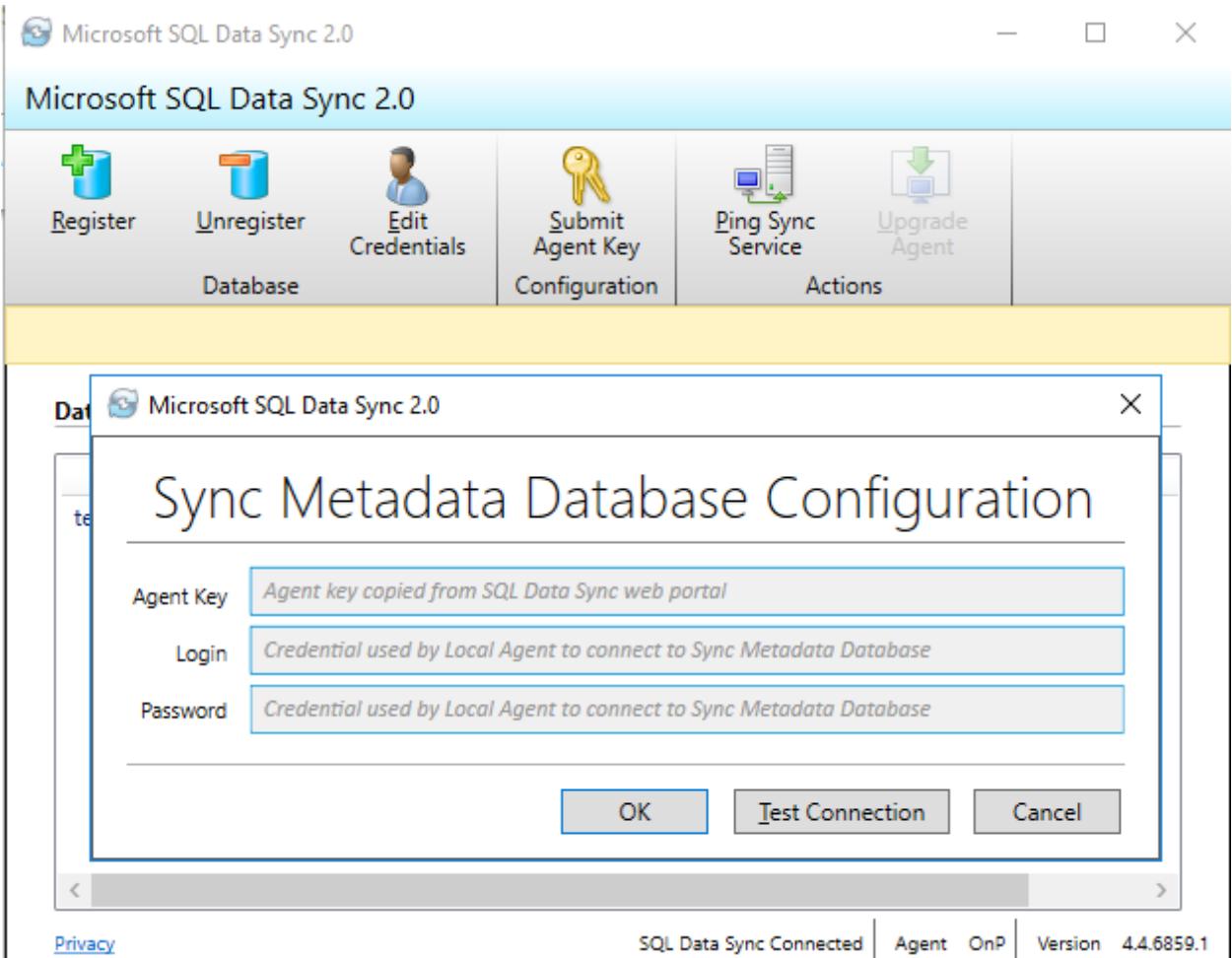


Generate a Key.

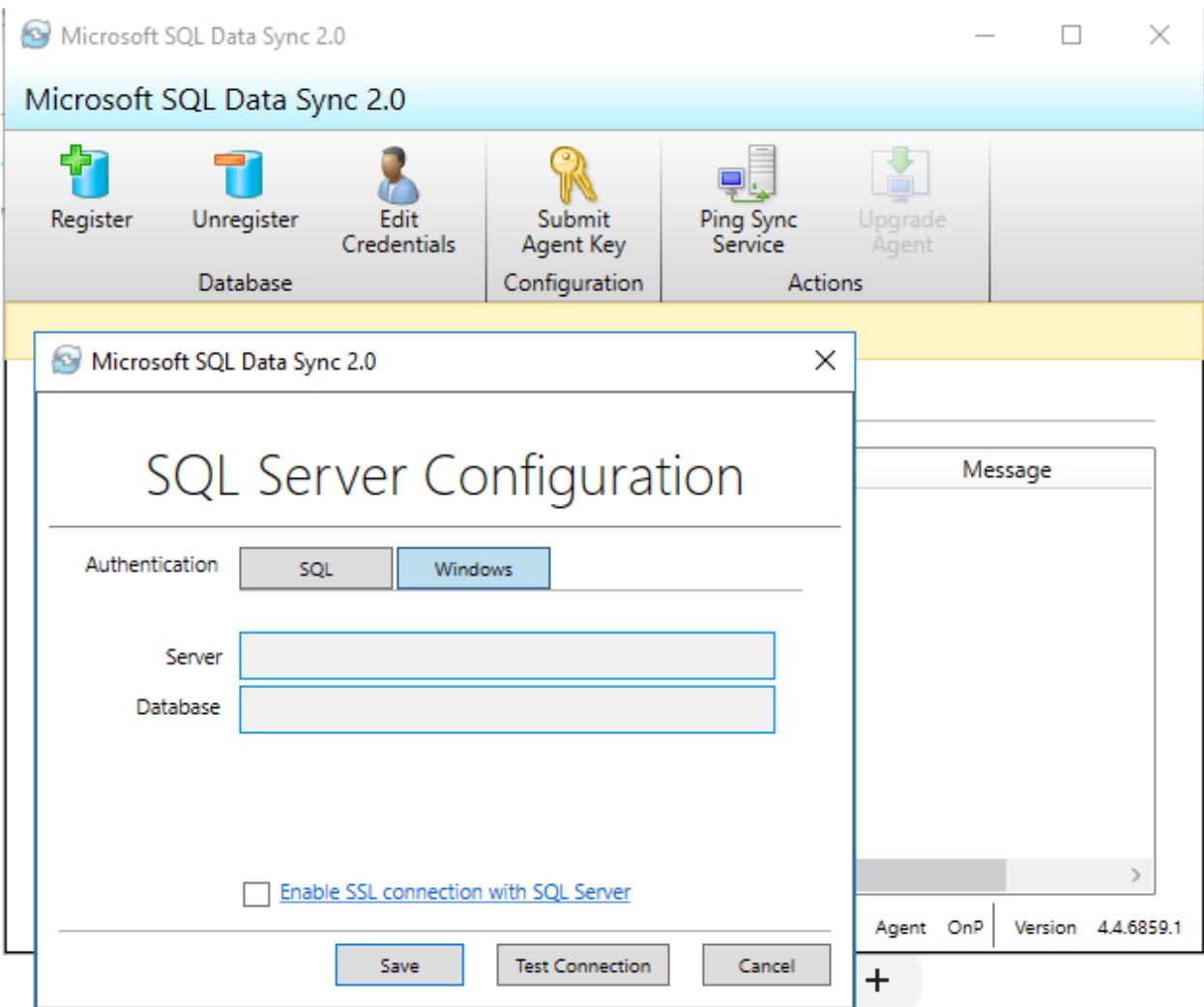
## 4.8 Configure Data Sync Client

**Please note**, all SQL Server on-premises should have port 1433 in the firewall, to let the client agent communicate with the server.

Open the Data Sync Client and Submit Agent Key Configuration



Add the SQL Server Information and Authentication



## 4.9 Portal Configuration of on-premises databases

In the Sync Member Name field, provide a name for the new sync member. This name is distinct from the name of the database itself. Select the database from the list. In the Sync Directions field, select Bi-directional Sync, To the Hub, or From the Hub.

The screenshot shows the configuration steps for a sync group:

- sync group**: Create sync group (status: Not Complete)
- Select sync members**: Hub Database (DataSync) configured with Username: aaaaa and Password: \*\*\*\*\*.
- Configure On-Premises**: Choose the Sync Agent Gateway (OnP), Select the Database (Not yet selected).
- SelectDatabase**: Sync Member Name (ONPremises), On-premises databases connected to this agent (ozserver/test), Sync Directions (Bi-directional Sync).

## 4.10 Configure Object(s) on Sync Group

After the new sync group members are created and deployed, Configure sync group.

The screenshot shows the configuration of sync objects:

- New sync group**: Create sync group (status: Not Complete)
- Tables**: Select a database (Hub Database) and choose tables to sync (SalesLT.Product).

Selected tables and fields for sync:

| NAME                     | COLUMNS   | NAME              | DATA TYPE    | DESCRIPTIONS       |
|--------------------------|-----------|-------------------|--------------|--------------------|
| dbo.BuildVersion         | 4         | SalesLT.Product   | ProductID    | int(4) Primary Key |
| dbo.ErrorLog             | 9         | Color             | nvarchar(15) |                    |
| SalesLT.Address          | 9         | StandardCost      | money(8)     |                    |
| SalesLT.Customer         | 15        | ListPrice         | money(8)     |                    |
| SalesLT.CustomerAddr...  | 5         | Size              | nvarchar(5)  |                    |
| <b>SalesLT.Product</b>   | <b>17</b> | Weight            | decimal(5)   |                    |
| SalesLT.ProductCateg...  | 5         | ProductCategoryID | int(4)       |                    |
| SalesLT.ProductDescri... | 4         | ProductModelID    | int(4)       |                    |
| SalesLT.ProductModel...  | 5         | SellStartDate     | datetime(8)  |                    |
| SalesLT.SalesOrderDet... | 9         | SellEndDate       | datetime(8)  |                    |
| SalesLT.SalesOrderHe...  | 22        |                   |              |                    |

**Save** button at the bottom left.

Select Tables and desired columns to be synchronized.

By default, databases are not synced until scheduled or manually run. To run a manual sync, navigate to your SQL database in the Azure portal, select Sync to other databases, and select the sync group. The Data Sync page opens. Select Sync.

The screenshot shows the Azure Data Sync interface. At the top, there's a breadcrumb navigation: Home > ozamora > DataSync (ozamora/DataSync) - Sync to other databases > DataSync. Below the navigation is a header bar with the title "DataSync" and a "Database Sync Group" dropdown. On the right of the header are icons for Sync (play), Stop, Properties, Delete, Filter Logs, and Refresh Logs. The main area has two tabs: "Databases" and "Tables". Under "Databases", there is a summary card with the number "3" and a SQL icon. Under "Tables", there is a summary card with the number "1" and a three-dot menu icon. At the bottom, there's a section titled "Logs" with a table showing log entries:

| TYPE    | DATE/TIME             | MEMBER DATABASE         | DETAILS   |
|---------|-----------------------|-------------------------|---|
| Success | 06/13/19, 12:25:22 PM | ORACLEMIGRATION/oz...   | Tombstone cleanup completed successfully. 0 rows deleted. |
| Success | 06/13/19, 12:22:35 PM | DataSync/ozamora.dat... | Tombstone cleanup completed successfully. 0 rows deleted. |
| Success | 06/13/19, 12:22:34 PM | test/ozserver           | Tombstone cleanup completed successfully. 0 rows deleted. |

## 5 Feedback and Suggestions

If you have feedback or suggestions for improving this data migration asset, please contact the Data SQL Ninja Engineering Team ([datasqlninja@microsoft.com](mailto:datasqlninja@microsoft.com)). Thanks for your support!

Note: For additional information about migrating various source databases to Azure, see the [Azure Database Migration Guide](#).

## 6 Additional Resources

- **Data Sync Agent:** <https://docs.microsoft.com/en-us/azure/sql-database/sql-database-data-sync-agent>
- **Tutorial On-Premises to Azure SQL DB:** <https://docs.microsoft.com/en-us/azure/sql-database/sql-database-get-started-sql-data-sync>