

# Set up Azure Synapse Analytics

In this reading you can see the steps involved in the process of setting up Azure Synapse Analytics.

## Note

You are not required to complete the processes, tasks, activities, or steps presented in this example. Your system may differ from the system set-up in the demonstration in this reading. The various samples provided are for illustrative purposes only and it's likely that if you try this out you will encounter issues in your system.

Azure Databricks is an Apache Spark-based analytics platform that supports SQL analytics and can be integrated with Azure Synapse to run high-performance analytics.

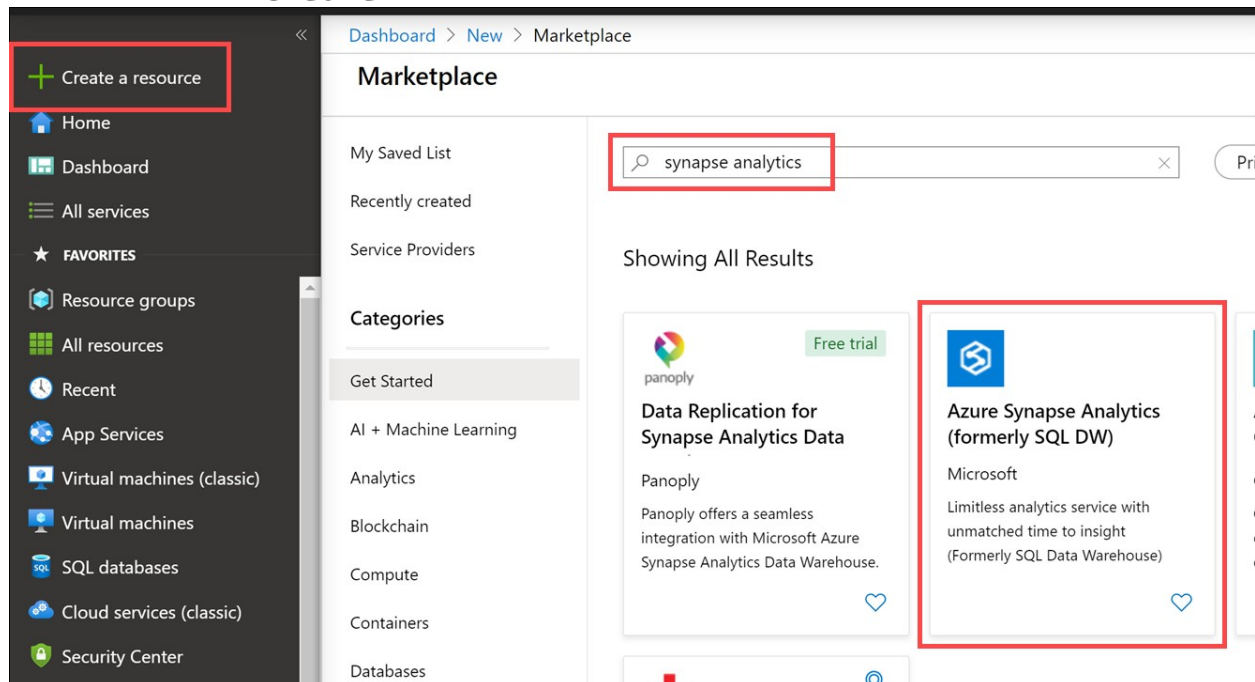
Creating end-to-end connectivity between Azure Databricks and Azure Synapse Analytics includes provisioning a sample Azure Synapse Analytics instance and setting up resources.

Let's start by setting up the environment.

## Set up Azure Synapse Analytics

1. Carry out the following steps [within the Azure Portal](#):

- Select **Create a resource**,
- Enter **Synapse Analytics** in the **Search the Marketplace** box,
- Select **Azure Synapse Analytics** in the results,
- Then select **Create**.



Create a new Azure Synapse Analytics service.

2. On the **Create Azure Synapse Analytics** pane, enter the following information in the **Basics** tab:

- **Subscription:** Select the subscription you're using for this module (The subscription you use will incur charges, this is not a free exercise. Pricing is shown on New Server pane).
- **Resource group:** Select the resource group you're using for this module.
- **SQL pool name:** Enter a unique name such as **Customers**. (Make sure you see a green check mark.)

The screenshot shows the 'Azure Synapse Analytics' interface with the 'Basics' tab selected. The 'Subscription' dropdown is set to 'Solliance MPN 12K'. The 'Resource group' dropdown is set to 'databricks-learning-paths', with a 'Create new' link below it. The 'SQL pool name' field contains 'Customers' and has a green checkmark. The 'Server' dropdown is set to 'Select a server', with a 'Create new' link below it. A red error message at the bottom states 'The value must not be empty.'.

**Azure Synapse Analytics**  
Microsoft

**Basics** • Additional settings \* Tags Review + create

Create a SQL pool with your preferred configurations. Complete the Basics tab then go to Review + Create to provision with smart defaults, or visit each tab to customize. [Learn more](#)

**Project details**

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \* ⓘ Solliance MPN 12K ▼

Resource group \* ⓘ databricks-learning-paths ▼  
[Create new](#)

**SQL pool details**

Enter required settings for this SQL pool, including picking a logical server and configuring the performance level.

SQL pool name \* Customers ✓

Server \* ⓘ Select a server ▼  
[Create new](#)

✖ The value must not be empty.

Create a Azure Synapse Analytics basics tab.


3. Select **Create New** in the Server field to open the **New Server** pane and enter the following:

- **Server name:** Enter a unique name (Make sure you see a green check mark).
- **Server admin login:** Enter **dwlabs**.
- **Password:** Enter a valid password, and then confirm the password.
- **Location:** Select the location you're using for resources in this module.
- **Allow Azure services to access server:** Select the check box.
- Select **OK**.

## New server


Microsoft

Server name \*




.database.windows.net


Server admin login \*




Password \*




Confirm password \*



Location \*



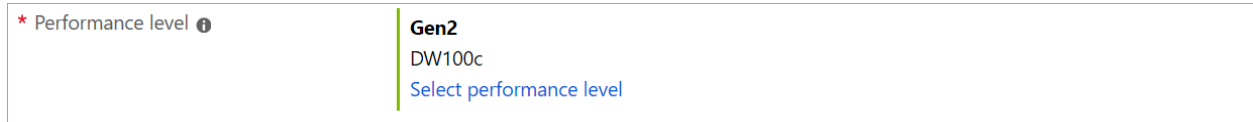
☒ Allow Azure services to access server 

Create a SQL server.

**Note:** Make sure that you remember the user name and password for SQL Server as you will need them later.

4. Select **Select Performance level** to open the Configure performance pane

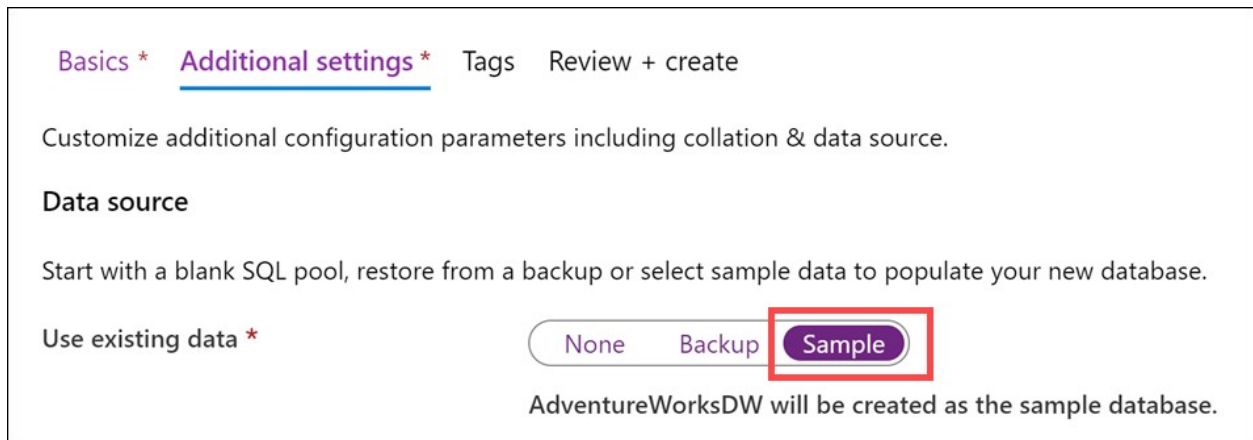
5. Select **Gen2 DW100c**.



A screenshot of a configuration interface. On the left, there is a label '\* Performance level' with an information icon. On the right, the selected option 'Gen2 DW100c' is displayed in bold, with a link 'Select performance level' below it.

select data warehouse server size

6. In the **Additional settings** tab, select **Sample** under data source.



A screenshot of the 'Additional settings' tab in a configuration interface. The tab is highlighted with a blue underline. Below the tab, there is a section titled 'Data source' with the instruction 'Start with a blank SQL pool, restore from a backup or select sample data to populate your new database.' Under the heading 'Use existing data \*', there are three buttons: 'None', 'Backup', and 'Sample'. The 'Sample' button is highlighted with a red rectangular box. Below the buttons, a note states 'AdventureWorksDW will be created as the sample database.'

Select Sample for the data source.


7. Select **Review +Create**.

8. Then select **Create**.


## Configure JDBC Connection to Azure Synapse Analytics

Interfacing with Azure Synapse Analytics requires a connection string. This can be retrieved from the Azure portal.

1. After the Azure Synapse Analytics instance is provisioned, open it by selecting **Go to resource** under notifications in Azure.



Your deployment is complete



Deployment name: Microsoft.SQLDataWarehouse.NewDatabaseIm...

Subscription:

Resource group: databricks-learning-paths

▼

Deployment details [\(Download\)](#)


^

Next steps

Go to resource

Select Go to resource.

2. At the top of the **Overview** pane, select the **Show database connection strings** link.

 Customers (databricks-learning-paths-sql/Customers)  
Synapse SQL pool (data warehouse)

Search (Ctrl+ /)

Pause Scale Restore + New restore point Delete

Overview

Activity log

Tags

Diagnose and solve problems

Settings

Maintenance schedule

Quick start

Geo-backup policy

Azure Synapse Analytics brings new workload management capabilities. Click here to learn more.

Welcome to Azure Synapse Analytics (formerly known as Azure SQL Data Warehouse). [Learn more.](#)

Resource group [\(change\)](#)  
databricks-learning-paths

Status  
Online

Location  
West US 2

Subscription [\(change\)](#)

Server name  
databricks-learning-paths-sql.datab...

Connection strings

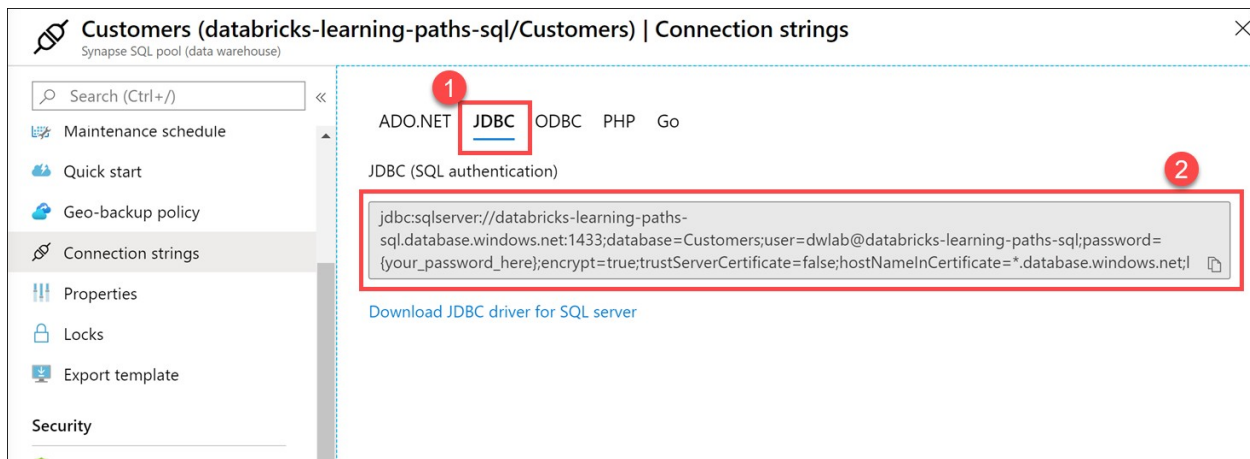
Show database connection strings

Performance level  
Gen2: DW100c

Maintenance schedule

Select the Connection strings link.

3. On the page for connection strings (1) select the **JDBC** tab, then (2) copy this string to be used below.



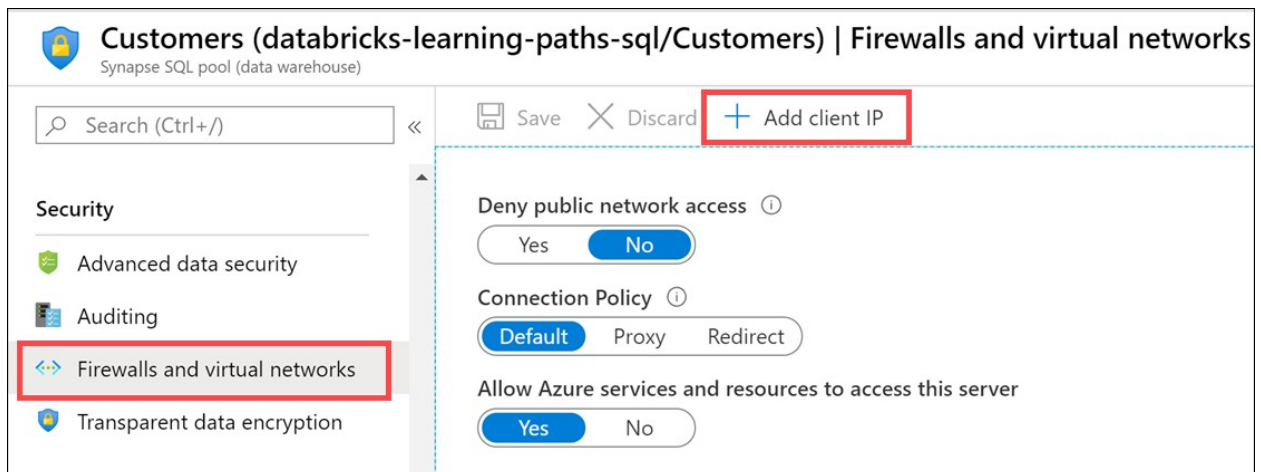
JDBC connection string.

4. Paste the JDBC connection string to a text editor for later. Replace **{your\_password\_here}** with your SQL Server password.

## Create a Master Key and table in Azure Synapse Analytics

In this step, we create a Master Key and a new table. However, before we use the query editor, we must first add the client IP address to the server firewall using the following steps:

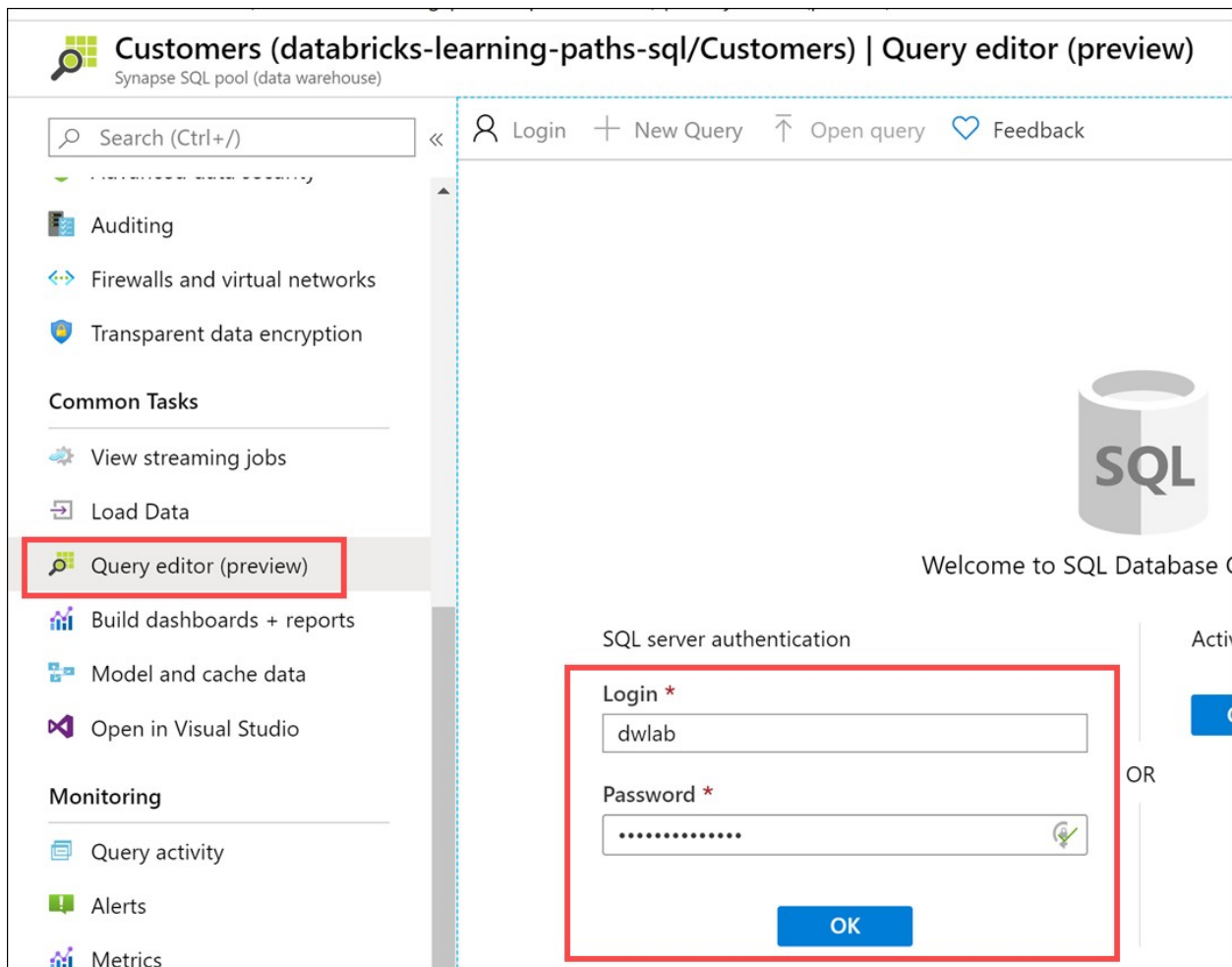
1. In Azure Synapse Analytics, select **Firewalls and virtual networks** on the left-hand menu.
2. Within the Firewalls and virtual networks blade, select **+ Add client IP** and then **Save**.



Add client IP to the firewall.

3. In Azure Synapse Analytics, select **Query editor** on the left-hand menu.

4. Log in with the SQL credentials.



Query Editor login.

5. Execute the following query to create a Master Key in Azure Synapse Analytics. This facilitates the connection from Azure Databricks:

```
CREATE MASTER KEY ENCRYPTION BY PASSWORD = 'CORRECT-horse-battery-staple';
```

6. Execute the following query to create a staging table for the Customer table. This query creates an empty table with the same schema as the Customer table:

```
CREATE TABLE dbo.DimCustomerStaging  
WITH
```

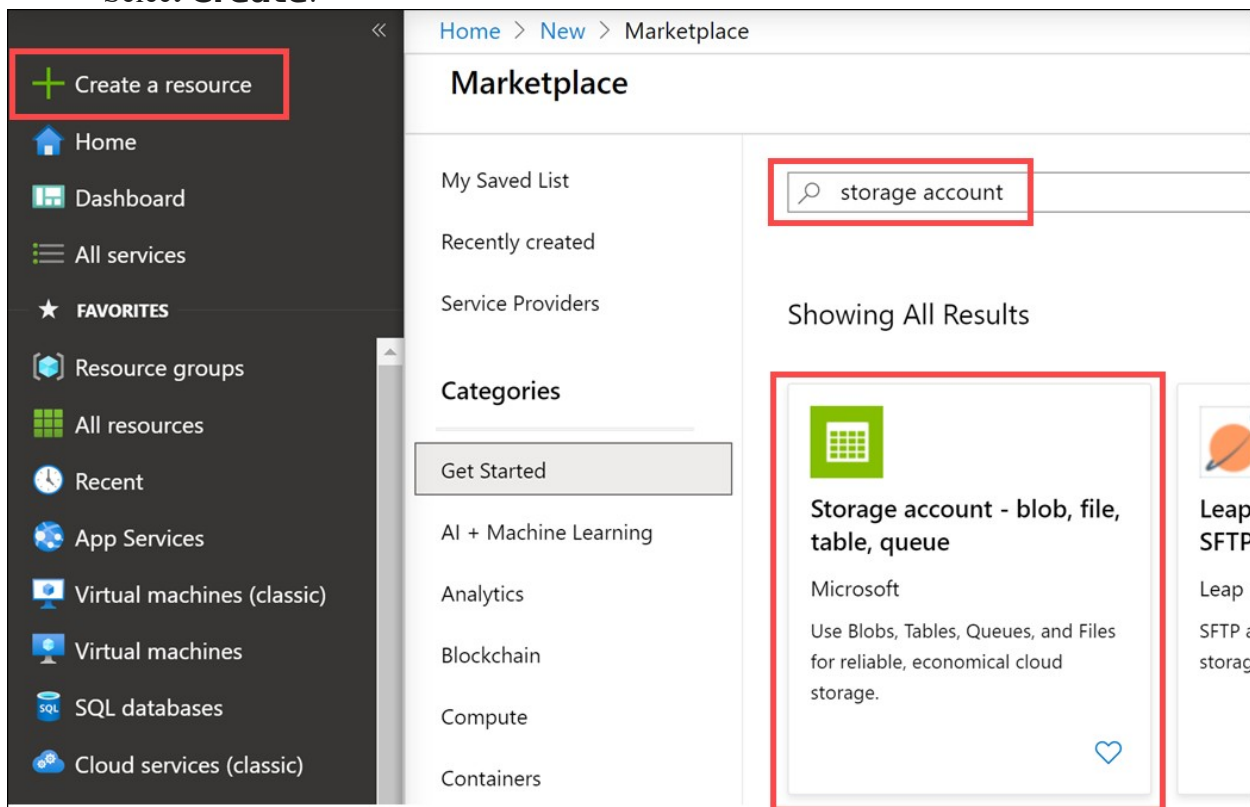


```
( DISTRIBUTION = ROUND_ROBIN, CLUSTERED COLUMNSTORE INDEX )
AS
SELECT *
FROM dbo.DimCustomer
WHERE 1 = 2
;
```

## Create Azure Blob Storage account

1. Carry out the following steps in the [Azure Portal](#):

- Select **Create a resource**,
- Enter **storage account** in the **Search the Marketplace** box,
- Select **Storage account - blob, file, table, queue** in the results,
- Select **Create**.



Create storage account.

2. On the **Create storage account** pane, enter this information in the **Basics** tab:

- **Subscription:** Select the subscription you're using for this module.
- **Resource group:** Select the resource group you're using for this module.
- **Storage account name:** Enter a unique name. (Make sure you see a green check mark.)
- **Location:** Select the same location as the other resources in this module.
- **Performance:** Select **StandardV2 (general purpose v2)**.



- **Replication:** Select **Locally-redundant storage (LRS)**.
- **Access tier (default):** Select **Hot**.

### Create storage account

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#### Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \*

Resource group \*

databricks-learning-paths

[Create new](#)

#### Instance details

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

Storage account name \* ⓘ

databrickslearnstore ✓

Location \*

(US) West US 2

Performance ⓘ

☒ Standard
 ☐ Premium

Account kind ⓘ

StorageV2 (general purpose v2)

Replication ⓘ

Locally-redundant storage (LRS)

Access tier (default) ⓘ

☐ Cool
 ☒ Hot

Review + create


< Previous

Next : Networking >


Create storage account basic form in portal.

3. Select **Review + create**, then select **Create**.

4. After the storage account is provisioned, open it by selecting **Go to resource** under notifications in Azure.



# Your deployment is complete



Deployment name: Microsoft.StorageAccount-20200402170509  
Subscription: XXXXXXXXXX  
Resource group: databricks-learning-paths

▼ Deployment details [\(Download\)](#)

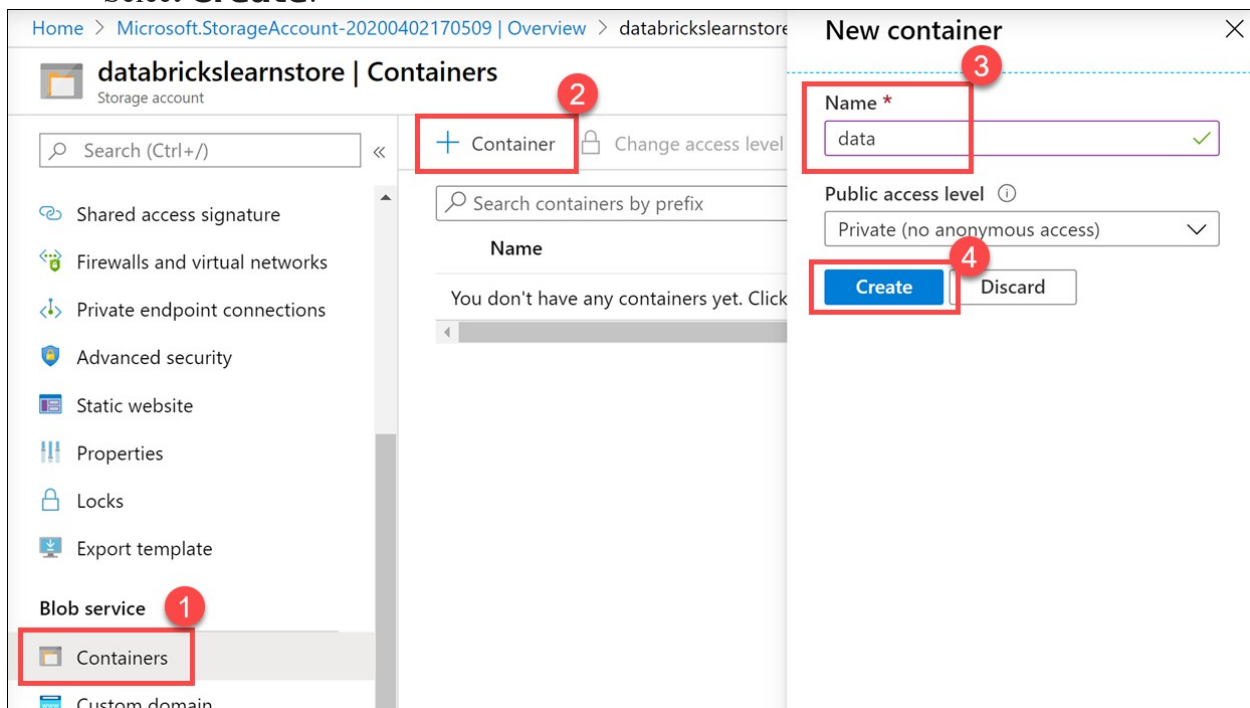
^ Next steps

Go to resource

Select Go to resource for your storage account.


5. Within the new storage account, carry out the following steps:

- Select **Containers** in the left-hand menu.
- In the Containers blade, select **+ Container** to add a new container.
- In the New Container form, enter **data** for the name and set the public access level to **Private**.
- Select **Create**.



Home > Microsoft.StorageAccount-20200402170509 | Overview > databrickslearnstore


**databrickslearnstore | Containers**  
Storage account

Search (Ctrl+ /) << **+ Container**  Change access level

Search containers by prefix

**Name**

You don't have any containers yet. Click

**New container** 

**Name \***  
data ✓

**Public access level** ⓘ  
Private (no anonymous access) ▼

**Create** **Discard**

Create a new container.

6. Select **Access keys** in the left-hand menu.

7. In the Access keys blade, copy the **Storage account name** and **Key** under **key1** (Save these values in a text editor for later).

**databrickslearnstore | Access keys**

Storage account

Search (Ctrl+ /) <<

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Data transfer
- Events
- Storage Explorer (preview)

**Settings**

- Access keys**
- Geo-replication
- CORS

Use access keys to authenticate your applications when making requests to this Azure storage account. Store your access keys securely - for example, using Azure Key Vault - and don't share them. We recommend regenerating your access keys regularly. You are provided two access keys so that you can maintain connections using one key while regenerating the other.

When you regenerate your access keys, you must update any Azure resources and applications that access this storage account to use the new keys. This action will not interrupt access to disks from your virtual machines.  
[Learn more about regenerating storage access keys](#)

**Storage account name**

databrickslearnstore

**key1** ↻

**Key**

lUaXbOsqene7dWEgW5m0w90gNBFjgrF9UvQkYHPelJ4cwr32Hsj3yZrD+n3/mxcRpF...

**Connection string**

DefaultEndpointsProtocol=https;AccountName=databrickslearnstore;AccountKey=...

Access keys.