

Explore data analytics in Azure with Azure Synapse Analytics

SUBMITTED BY:

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LEARNING OUTCOMES:

- ❑ **Workspace Provisioning** – Learn how to create and configure an **Azure Synapse Analytics workspace** with required resources.
- ❑ **Data Ingestion** – Understand how to **ingest and store data** using the **Copy Data tool** and **Azure Data Lake Storage Gen2**.
- ❑ **SQL-based Data Analysis** – Perform SQL queries on ingested data using SQL pools and generate insights with visualizations.
- ❑ **Spark-based Data Processing** – Use Apache Spark pools and PySpark to process, analyze, and visualize large datasets efficiently.

portal.azure.com/?azure-portal=true#view/HubsExtension/DeploymentDetailsBlade/~/overview/id/%2Fsubscriptions%2F76fedad0-316c-4a6...       Relaunch to update :  YouTube  Maps  Gmail All Bookmarks Microsoft Azure Search resources, services, and docs (G+) Copilot   1    XLab-sDx-412@xtremelabs.o... LAB DIRECTORY (XTREMELABS.O...

Home >



Microsoft.Azure.SynapseAnalytics-20250207131928 | Overview



Deployment



s



x



Delete



Cancel



Redeploy



Download



Refresh

-  Overview
-  Inputs
-  Outputs
-  Template

Deployment is in progress

Deployment name : Microsoft.Azure.SynapseAnalytics-202502071... Start time : 7/2/2025, 1:22:42 pm

Subscription : XLabs-412

Correlation ID : b8cd577f-8eed-456a-9351-7513fdf34608

Resource group : synapse-rgg

Deployment details

Resource	Type	Status	Operation details
 sharndata	Storage account	Accepted	Operation details

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Microsoft Azure Search resources, services, and docs (G+) Copilot Home > Microsoft.Azure.SynapseAnalytics-20250207131928 | Overview > XLab-sDx-412@xtremelabs.onmicrosoft.com LAB DIRECTORY (XTREMELABS.ONMICROSOFT.COM)

synapse-rgg Resource group

Search Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags Move Delete ...

Overview Essentials JSON View

Activity log Access control (IAM) Tags Resource visualizer Events Settings Cost Management Monitoring Automation Help

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 2 of 2 records. Show hidden types

No grouping List view

Name ↑↓	Type ↑↓	Location ↑↓
sharndata	Storage account	Australia East
synapse-wshop	Synapse workspace	Australia East

< Previous Page 1 of 1 Next >

Give feedback



← → ⌂ web.azuresynapse.net/en/home/copywizard?workspace=%2Fsubscriptions%2F76fedad0-316c-4a63-b3b8-76029e19ae94%2FresourceGroups... ⌂ ⌂ ⌂ ⌂ Relaunch to update ⌂

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Microsoft Azure | Synapse Analytics > synapse-wshop

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Copy Data tool

Properties
Source
Destination
Dataset
Configuration
Settings
Review and finish

Destination data store

Specify the destination data store for the copy task. You can use an existing data store connection or specify a new data store.

Destination type: Azure Data Lake Storage Gen2

Connection *: synapse-wshop-WorkspaceDefaultSt... [Edit](#) [New connection](#)

Integration runtime *: AutoResolveIntegrationRuntime [Edit](#)

Folder path: sharnfs/ [Browse](#)

File name: products.csv

Copy behavior: Select...

Max concurrent connections:

Block size (MB):

Metadata:

< Previous [Next >](#) Cancel

← → ⌂ web.azuresynthesize.net/en/home/copywizard?workspace=%2Fsubscriptions%2Fd4fb3308-c367-4b8f-8b70-ee0659f7c006%2FresourceGroups%2Fsynapse... ☆ Relaunch to update : | All Bookmarks

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Copy Data tool

Properties ✓
Source ✓
Destination ✓
Settings ✓
Review and finish
Review
Deployment

HTTP → Azure Data Lake Storage Gen2

Deployment complete

Deployment step	Status
Validating copy runtime environment	Succeeded
> Creating datasets	Succeeded
> Creating pipelines	Succeeded
> Running pipelines	Succeeded

Datasets and pipelines have been created. You can now monitor and edit the copy pipelines or click finish to close Copy Data Tool.

Finish Edit pipeline Monitor

Search             ENG US 7:20 PM 2025-02-07

← → ⌂ web.azuresynapse.net/en/monitoring/pipelineruns?workspace=%2Fsubscriptions%2Fd4fb3308-c367-4b8f-8b70-ee0659f7c006%2FresourceGroups%2Fs... ☆ Relaunch to update :

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Home Data Develop Integrate Monitor Manage

Analytics pools

- SQL pools
- Apache Spark pools
- Data Explorer pools (preview)

Activities

- SQL requests
- KQL requests
- Apache Spark applications
- Data flow debug

Integration

- Pipeline runs
- Trigger runs
- Integration runtimes
- Link connections

Pipeline runs

Triggered Debug Rerun Cancel options Refresh Edit columns List Gantt

Filter by run ID or name Mountain Time (US ... : Last 24 hours Pipeline name : All

Status : All Runs : Latest runs Triggered by : All Add filter

Copy filters Export to CSV

Last refreshed 4 minutes ago

Pipeline name ↑	Run start ↑	Run end ↑	Duration	Triggered by	Status 1
CopyProducts	2/7/2025, 7:20:42 PM	2/7/2025, 7:20:58 PM	17s	Manual trigger	Succ

2 Search

7:26 PM 2025-02-07 ENG US

← → ⌂ web.azure-synapse.net/en/authoring/explore/linked/sqlscripts/SQL%20script%201?workspace=%2Fsubscriptions%2Fd4fb3308-c367-4b8f-8b70-ee0659f... ☆ | Relaunch to update :

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Synapse live Validate all Publish all 1

Home Data Workspace Linked Filter resources by name

Azure Data Lake Storage Gen2 2

synapse-wshop (Primary - sharndata) 2

sharnfs (Primary)

(Attached Containers)

Integration datasets 2

DestinationDataset_qaw

SourceDataset_qaw

Data

sharnfs SQL script 1

Run Undo Publish Query plan Connect to Built-in ...

-- This is auto-generated code

```
1 SELECT
2     TOP 100 *
3 FROM
4     OPENROWSET(
5         BULK 'https://sharndata.dfs.core.windows.net/sharnfs/products',
6         FORMAT = 'CSV',
7         PARSE_VERSION = '2.0'
8     ) AS [result]
```

Properties

General Related (0)

Name * SQL script 1

Description

Type .sql script

Size 224 bytes

Results settings per query ⓘ

First 5000 rows (default)

All rows

Results Messages

View Table Chart Export results

Search

C1	C2	C3	C4
ProductID	ProductName	Category	ListPrice
771	Mountain-100 ...	Mountain Bikes	3399.9900

00:00:01 Query executed successfully.

2 Search

7:30 PM 2025-02-07 ENG US

← → G web.azure-synapse.net/en/authoring/explore/linked/sqlscripts/SQL%20script%201?workspace=%2Fsubscriptions%2Fd4fb3308-c367-4b8f-8b70-ee0659f... ⭐ 🗑️ Relaunch to update ⋮

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Search

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Synapse live Validate all Publish all 1

Home Data Develop Integrate Monitor Manage

Data

Workspace Linked

Filter resources by name

Azure Data Lake Storage Gen2 2

synapse-wshop (Primary - sharndat... sharnfs (Primary)

(Attached Containers)

Integration datasets 2

DestinationDataset_qaw SourceDataset_qaw

sharnfs SQL script 1

Other users in your workspace may have access to modify this item. Do not use this item unless you trust all users who may have access to the workspace.

Run Undo Publish Query plan Connect to Built-in ...

```
1 SELECT
2     Category, COUNT(*) AS ProductCount
3 FROM
4     OPENROWSET(
5         BULK 'https://sharndata.dfs.core.windows.net/sharnfs/product.csv',
6         FORMAT='CSV',
7         PARSE_VERSION='2.0',
8         HEADER_ROW = TRUE
9     ) AS [result]
10    GROUP BY Category;
```

Properties

General Related (0)

Name * SQL script 1

Description

Type .sql script

Size 224 bytes

Results settings per query ⓘ

First 5000 rows (default)

All rows

Results Messages

View Table Chart Export results

Search

Category	ProductCount
Bib-Shorts	3
Bike Racks	1

00:00:02 Query executed successfully.

2 Search

ENG US 7:35 PM 2025-02-07

← → ⌂ web.azure-synapse.net/en/authoring/analyze/sqlscripts/count%20products%20by%20category?workspace=%2Fsubscriptions%2Fd4fb3308-c367-4b8f-8... ☆ | Relaunch to update :

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Home Data Develop Integrate Monitor Manage

Develop

Filter resources by name

SQL scripts 1

count products by category

sharnfs count products by c...

Other users in your workspace may have access to modify this item. Do not use this item unless you trust all users who may have access to the workspace.

Run Undo Publish Query plan Connect to Built-in ...

Results Messages

View Table Chart Save as image

Chart type: Column

Category column: Category

Legend (series) columns: ProductCount

Legend position: bottom - center

Legend (series) label:

Legend (series) minimum value:

Legend (series) maximum value:

00:00:03 Query executed successfully.

Bib-Sho... Bike Stands Bottom Brackets Caps Cleaners Deraileurs Forks Handlebars Helmets Jerseys Locks Mountain Frames Pedals Road Bikes Saddles Socks Tires and Tubes Touring Frames Wheels

ProductCount

Category	ProductCount
Bib-Sho...	1
Bike Stands	2
Bottom Brackets	3
Caps	1
Cleaners	2
Deraileurs	1
Forks	3
Handlebars	7
Helmets	3
Jerseys	8
Locks	2
Mountain Frames	32
Pedals	7
Road Bikes	42
Saddles	33
Socks	5
Tires and Tubes	10
Touring Frames	18
Wheels	14

7:42 PM 2025-02-07 ENG US

The screenshot shows the Microsoft Azure Synapse Analytics workspace interface. The left sidebar includes links for Home, Data, Develop, Integrate, Monitor, and Manage. The main area displays a notebook titled "Notebook 1" under the "Linked" tab. The notebook contains the following Python code:

```
1 %%pyspark
2 df = spark.read.load('abfss://sharnfs@sharndata.dfs.core.windows.net/products.csv', format='csv')
3 ## If header exists uncomment line below
4 ##, header=True
5 )
6 display(df.limit(10))
```

The code was executed successfully, as indicated by the message: "3 min 38 seche Spark session started in 3 min 11 sec 701 ms. Command executed in 27 sec 65 ms by XLab-Oyg-425 on 7:51:15 PM, 2". Below the code, there is a summary: "Job execution Succeeded" with "Spark 2 executors 8 cores". There are also "View in monitoring" and "Open Spark UI" links.

The notebook interface includes tabs for View, Table (selected), Chart, and Export results. A preview table shows the first four rows of the dataset:

_c0	_c1	_c2	_c3
ProductID	ProductName	Category	ListPrice
771	Mountain-100 Silver, 38	Mountain Bikes	3399.9900
772	Mountain-100 Silver, 42	Mountain Bikes	3399.9900
773	Mountain-100 Silver, 44	Mountain Bikes	3399.9900

At the top right, there is a message about workspace permissions: "Other users in your workspace may have access to modify this item. Do not use this item unless you trust all users who may have access to the workspace." Buttons for Accept, Reject, and More options are also present.

← → ⌂ web.azuresynthesize.net/en/authoring/explore/linked/notebooks/Notebook%201?workspace=%2Fsubscriptions%2Fd4fb3308-c367-4b8f-8b70-ee0659f7c006%2... ☆ Relaunch to update : All Bookmarks

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Synapse live Validate all Publish all 2 Data sharnfs count products by ca... Notebook 1 Run all Undo Publish Outline Attach to spark ... Filter resources by name Ready Job execution succeeded SPARK 2 executors 0 cores View Table Chart Export results ...

... _c0 _c1 _c2 _c3

ProductID	ProductName	Category	ListPrice
771	Mountain-100 Silver, 38	Mountain Bikes	3399.9900
772	Mountain-100 Silver, 42	Mountain Bikes	3399.9900
773	Mountain-100 Silver, 44	Mountain Bikes	3399.9900
774	Mountain-100 Silver, 48	Mountain Bikes	3399.9900
775	Mountain-100 Black, 38	Mountain Bikes	3374.9900
776	Mountain-100 Black, 42	Mountain Bikes	3374.9900
777	Mountain-100 Black, 44	Mountain Bikes	3374.9900
778	Mountain-100 Black, 48	Mountain Bikes	3374.9900
779	Mountain-200 Silver, 38	Mountain Bikes	2319.9900

View monitoring Open Spark UI

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← → G portal.azure.com/?azure-portal=true#@xtremelabs.onmicrosoft.com/resource/subscriptions/d4fb3308-c367-4b8f-8b70-ee0659f7c006/resourceGro... 🗑️ 🌐 ⚙️ Relaunch to update ⋮

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Home > Microsoft.Azure.SynapseAnalytics-20250207190722 | Overview > synapse-rgg > spark (synapse-wshop/spark)

spark (synapse-wshop/spark) ⭐ ...

Apache Spark pool

Search Scale settings Pause settings Refresh Delete

Overview Essentials JSON View

Resource group ([move](#)) : [synapse-rgg](#) Workspace name : [synapse-wshop](#)

Status : Succeeded

Location : East US 2

Subscription ([move](#)) : [XLabs-425](#)

Subscription ID : d4fb3308-c367-4b8f-8b70-ee0659f7c006

Tags ([edit](#)) : [Add tags](#)

... Deleting Apache Spark pool 'spark'
Deleting Apache Spark pool 'spark' for workspace 'synapse-wshop/spark'.

Activity log Access control (IAM) Tags Settings Monitoring Automation Help

8:13 PM 2025-02-07 ENG US

THANK YOU!!!!!!