

Open Edu Analytics Implementation Guide

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Introduction

This document provides technical details on the step by step setup of the Open Edu Analytics solution.

Open Edu Analytics is an open source modern data warehouse solution for education, built on Synapse Analytics and supporting Azure platform services.

For a review of the solution itself, refer to the document Education Analytics Summary.

All scripts and documentation for the Open Edu Analytics solution can be found at: <https://github.com/microsoft/OpenEduAnalytics>

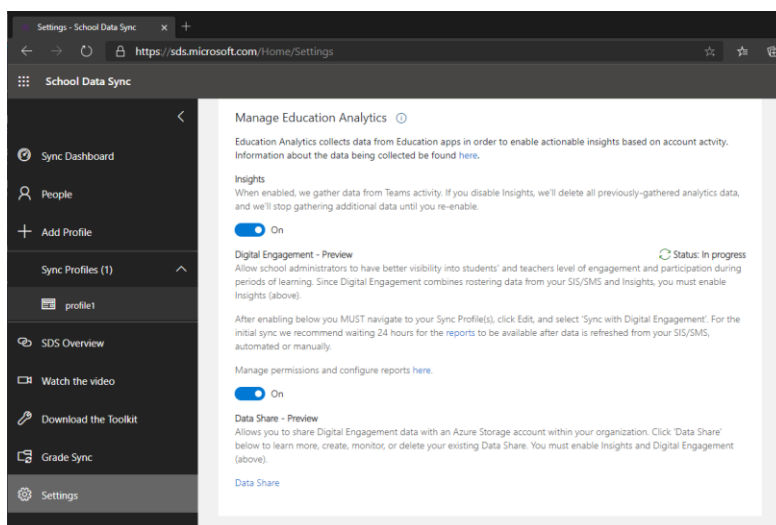
The following are required prior to implementing the steps in this guide:

- Integration with School Data Sync
- Onboarding into the Education Analytics Azure Data Share TAP program
- An Azure subscription

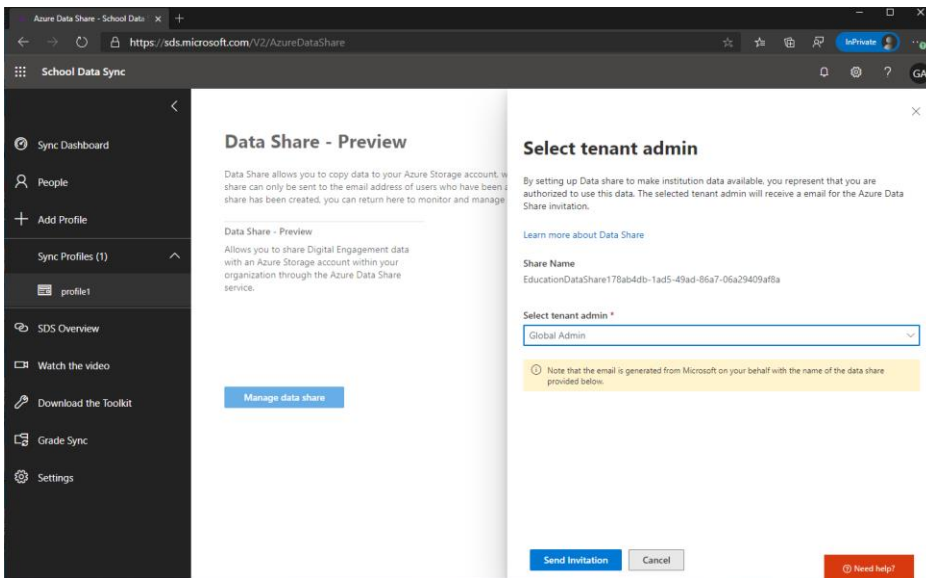
1) Setup Data Share in School Data Sync

1.1) Click on Data Share in School Data Sync settings page

In order to begin receiving usage data from M365, the first step is to initiate the Data Share feature within School Data Sync. If the Data Share – Preview section is not visible in your account, check with your account manager to have the feature enabled for your tenant.



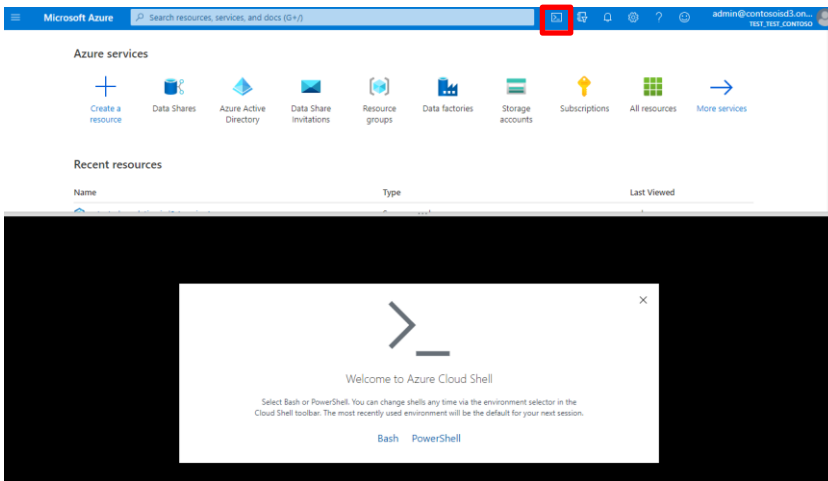
1.2) Click on “Manage data share”, then select the tenant admin who is doing the setup, and click “Send Invitation”



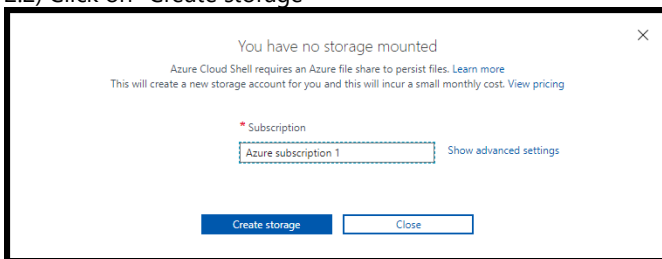
2) Setup Resources in Azure Portal

In this section you will use a script to provision the Azure resources that comprise the core of this solution.

2.1) In Azure portal, click on the Cloud Shell icon, then select "Bash".

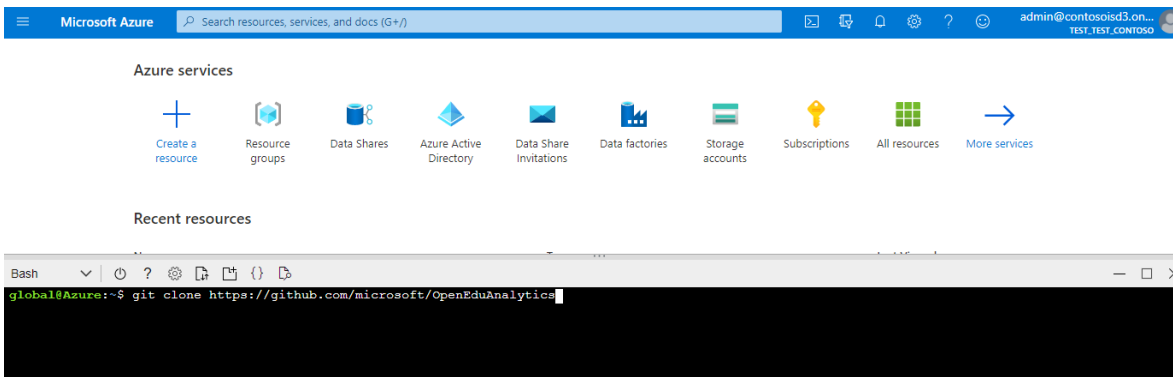


2.2) Click on "Create storage"



2.3) At the bash shell prompt, enter the following commands:

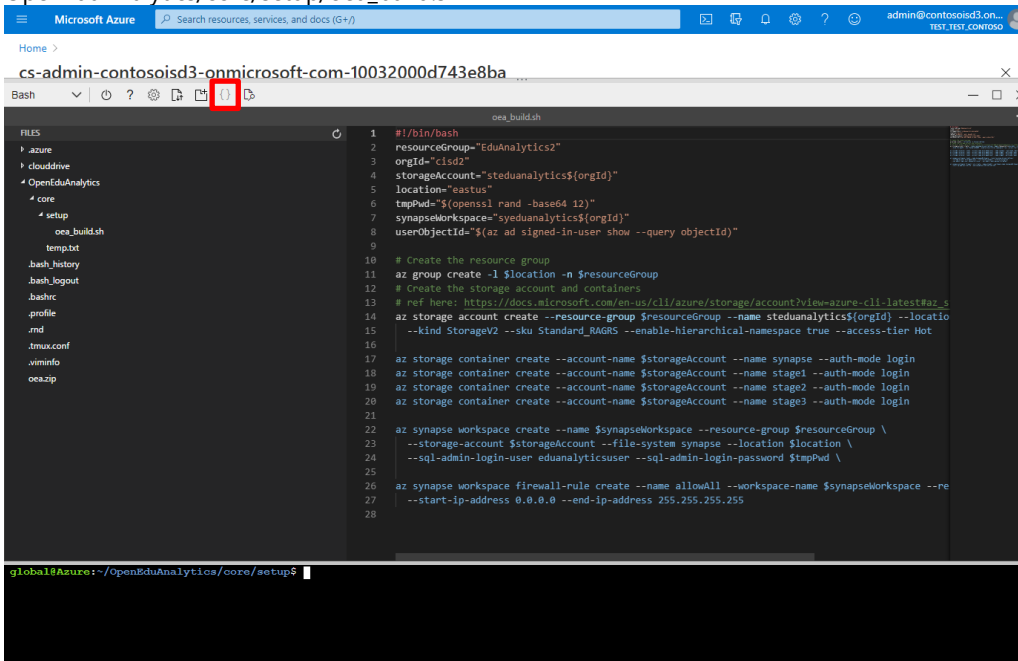
```
cd clouddrive
git clone https://github.com/microsoft/OpenEduAnalytics
```



2.4) Edit the build script in OpenEduAnalytics/core/setup/oea_build.sh by changing the settings for:

- "orgId" to be a value that represents your organization (this is a string that is used as a suffix in the naming of certain resources that require a globally unique id)
- "location" to be an appropriate Azure data center location

You can make this edit by using the built-in editor (click on the "Open Editor" icon), then navigate to OpenEduAnalytics/core/setup/oea_build.sh



2.5) Make the script executable, then execute it (use the following commands):

```
cd ./OpenEduAnalytics/core/setup
chmod +x oea_build.sh
./oea_build.sh
```

This will take a few minutes to complete, and will result in the provisioning of the following Azure resources:

- EduAnalytics resource group
- storage account with 3 storage containers (named stage1, stage2, and stage3)
- Azure Synapse workspace

3) Setup Azure Data Share

3.1) In Azure portal, search for "Data Share Invitations" then click on the link to arrive at the Data Share Invitations page, and click on the invitation for EducationDataShare.

The screenshot shows the Microsoft Azure portal interface. At the top, there's a search bar with the text "Search resources, services, and docs (G+/I)". Below the search bar, the "Data Share Invitations" page is displayed. It includes a "Refresh" button and a message: "Pending invitations sent to your Azure login email are listed. See [accept and receive data tutorial](#) for details." A table lists the invitations:

Invitation	Sender	Company	Status
sdsCsvBlob	Gene Garcia	Microsoft	Pending
EducationDataShare178ab4db-1ad5-49ad-86a7-06a29409af8a	cdc5aeea-15c5-4db6-b079-fcadd2505dc2_7ac0e46e-...	PRDTR501	Pending

2.5) For "Resource group", select "EduAnalytics" for the resource group.

For "Data share account", click "Create new", type "DataShare" for the name of the data share account and click "Create". Then click on "Accept and Configure"

The screenshot shows the "Create data share account" form. It has two columns. The left column is titled "TARGET DATA SHARE ACCOUNT" and contains fields for "Subscription" (Azure subscription 1), "Resource group" (EduAnalytics), "Data share account" (DataShare), and "Received share name" (sdsCsvBlob). The right column contains fields for "Data share account name" (DataShare), "Subscription" (Azure subscription 1), "Resource group" (EduAnalytics), and "Location" (East US). A "Create" button is at the bottom right. Below the form, there are "Accept and configure" and "Reject" buttons.

2.6) Go to the DataShare resource created in the last step, click on "View received shares", then click on the EducationDataShare link, then click on "Datasets", then click on "Map to target"

The screenshot shows the "DataShare | Received Shares" page in the Azure portal. It includes a search bar and a navigation pane on the left with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings, Properties, Locks, Export template, Data Share, Sent Shares, Received Shares, Feedback, Monitoring, Alerts, Metrics, Diagnostic settings, Logs, Support + troubleshooting, Resource health, and New support request. The main content area shows the "Received Shares" for the "EducationDataShare178ab4db-1ad5-49ad-86a7-06a29409af8a" resource. It includes a "Trigger snapshot" button and a "Refresh" button. Below this, there's a table with details about the source share, provider, and status.

Source share	Provider
EducationDataShare178ab4db-1ad5-49ad-86a7-06a29409af8a	cdc5aeea-15c5-4db6-b079-fcadd2505dc2_7ac0e46e-11fb-4010-8d84-286db5cf546b

Additional details shown include: Provider company (PRDTR501), Shared on (3:46:15 PM, 8/13/2020), Number of source datasets (1), Accepted by (Global Admin), Last run status (Uninitiated), Received share status (Active), and a description: "Share for data for tenant 178ab4db-1ad5-49ad-86a7-06a29409af8a".

2.7) Select the resource group and storage account created earlier and enter "stage1/m365" for Path (this container is for the purpose of receiving usage data from M365), then click "Map to target" button.

Microsoft Azure

Search resources, services, and docs (Ctrl+K)

admin@contoso.com | Log out | Profile

Home > DataShare

DataShare | Received Shares

Received Shares > EducationDataShare173ab4d0-1a55-45ed-85a7-05a29405a6fa

Overview | Details | Datasets | Snapshot Schedule | History

Select datasets to map to target data stores. You can map datasets of the same type to the same target.

Refresh | Filter by name | Filter by name | Map to target | Datasets | Trigger snapshot

DATASETS	SOURCE TYPE	SOURCE PATH	STATUS	TARGET TYPE	PATH
<input checked="" type="checkbox"/> DfData	Azure Data Lake Storage Gen2 Folder	DP	Not Mapped	-	-

Settings | Properties | Locks | Data Share | Sent Shares | Received Shares | Feedback | Monitoring | Alerts | Metrics | Diagnostic settings | Logs | Automation | Tasks (preview) | Export template | Support > Troubleshooting | Resource health | New support request

Map datasets to target

Target data type: Azure Data Lake Storage Gen2

Subscriptions: Azure subscription 1

Resource groups: Subscription1RG1

Storage accounts: Subscription1Storage002

Create new: none

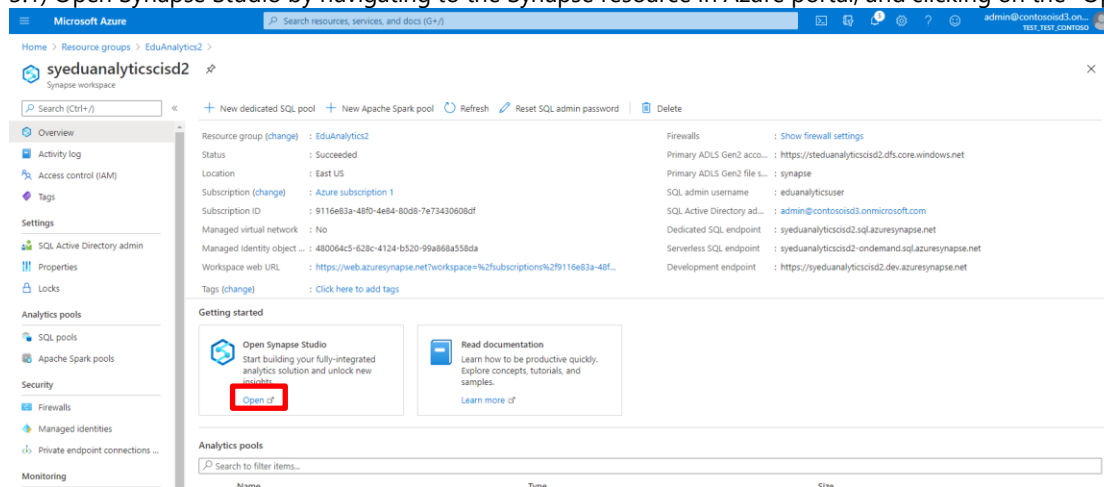
Path: /stage1/mc02

DATASETS	SOURCE TYPE	SOURCE PATH
<input checked="" type="checkbox"/> DfData	Azure Data Lake Storage Gen2 Folder	DP

Cancel | Map to target

4) Setup Synapse

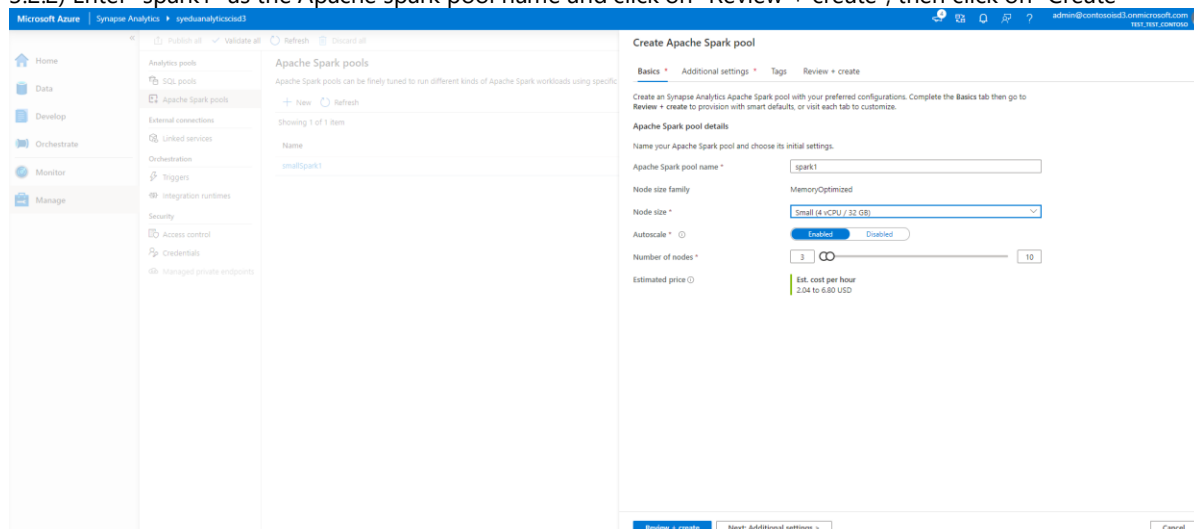
3.1) Open Synapse Studio by navigating to the Synapse resource in Azure portal, and clicking on the “Open” link:



3.2) Create an Apache Spark pool

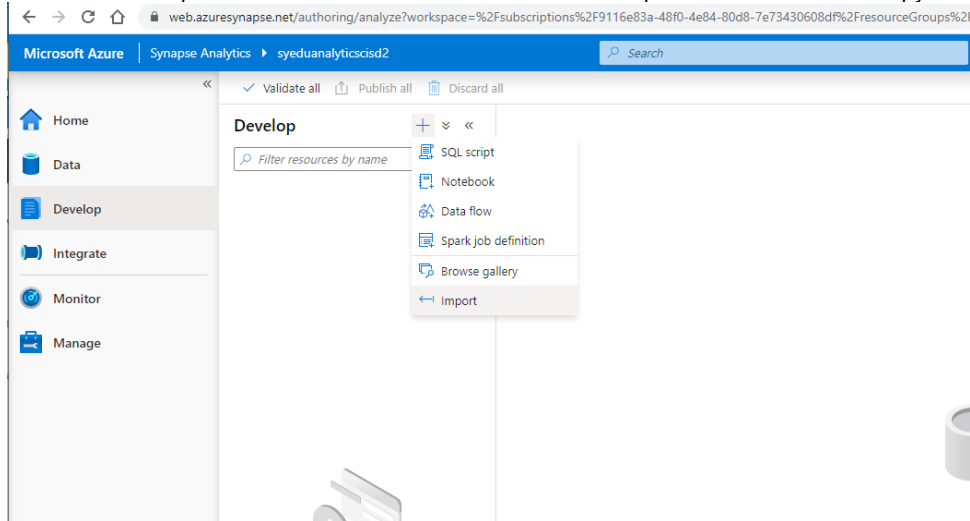
3.2.1) Click on “Manage”, then click on “Apache Spark pools”, then on “New”

3.2.2) Enter “spark1” as the Apache spark pool name and click on “Review + create”, then click on “Create”



3.3) Import m365 Notebook

Click on “Develop”, then click on the “+” icon, and select “Import”, then select m365.ipynb from your local file system.



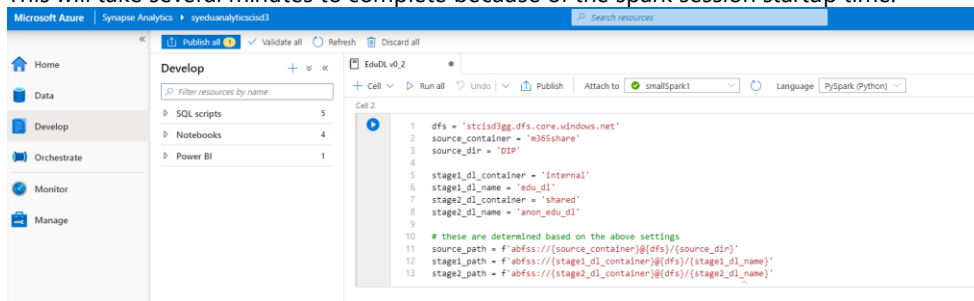
3.4) Ingest m365 data into stage 2 and stage 3 data lakes

3.4.1) Click on “Develop”, then click on m365 to open the notebook

3.4.2) Select “spark1” in the “Attach to” dropdown and select “PySpark (Python)” in the Language dropdown.

3.4.3) Click on the play icon under the heading “Cell 2” to execute the contents of the script in Cell 2.

This will take several minutes to complete because of the spark session startup time.



3.4.4) Click on the play icon for Cell 3 and wait for it to complete.

3.4.5) Click on the play icon for Cell 4 and wait for it to complete.

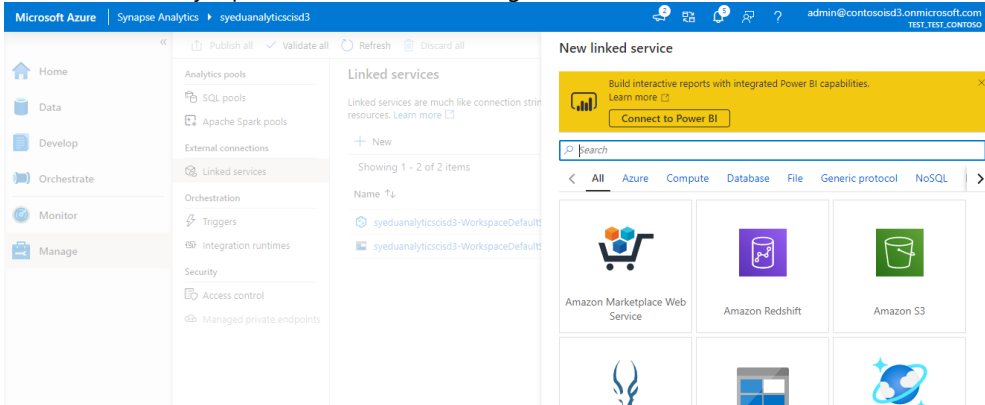
3.4.6) Click on the play icon for Cell 5 and wait for it to complete.

3.4.7) Click on the play icon for Cell 6 and wait for it to complete.

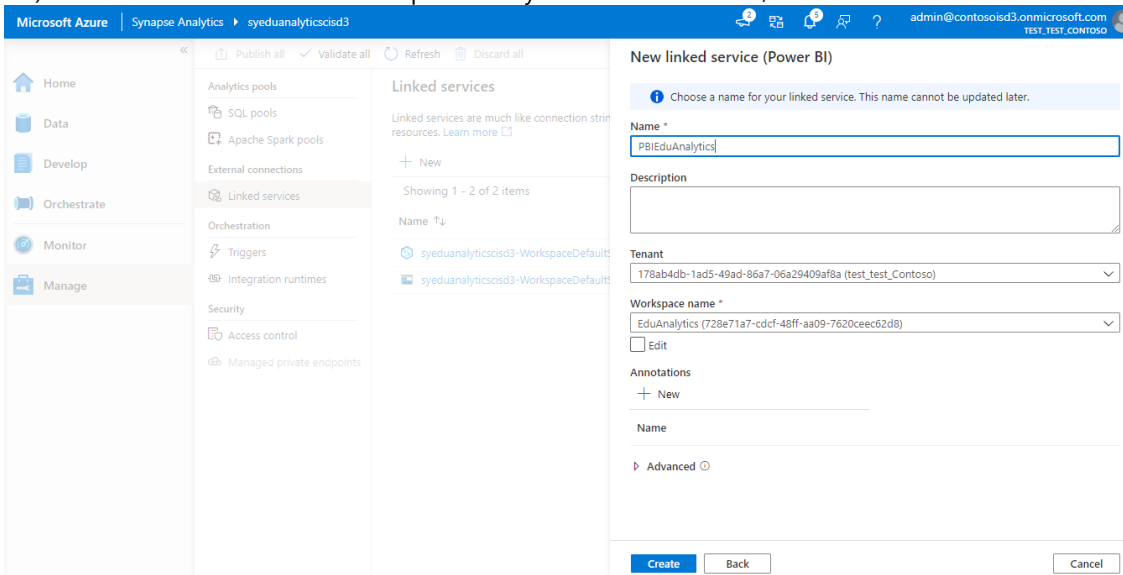
4) Setup Power BI

In order to setup Power BI for use within Azure Synapse Analytics, you must already have a Power BI account, and a Power BI workspace created within that account.

4.1) From within Synapse studio, click on "Manage", click on "Linked services", click on "New", click on "Connect to Power BI"

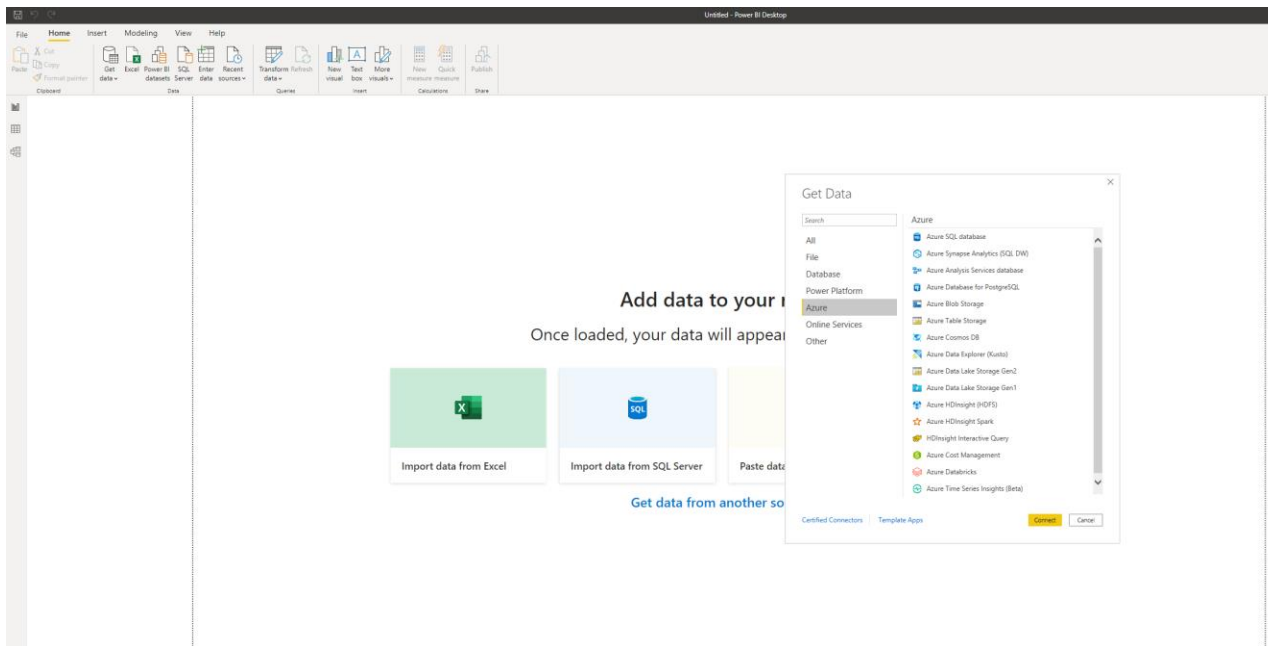


4.2) Enter a name and select the workspace from your Power BI account, then click "Create"

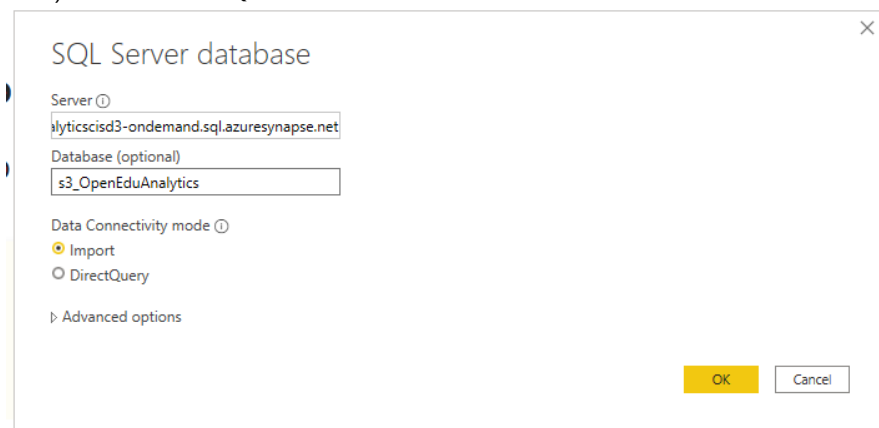


4.3) Create a PowerBI Report

4.3.1) Open Power BI Desktop, select "Get data"



4.3.2) Select "Azure SQL database".



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