WEDNESDAY, SEPTEMBER 27,

AZURE

DATA BRICKS

REPORT

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DATA DEVELOPER

Objectif du projet :

L'objectif principal de ce projet est de développer une compréhension approfondie des concepts fondamentaux de l'ETL en utilisant les services Microsoft Azure . Nous nous sommes engagés à mettre en œuvre un scénario d'extraction, de transformation et de chargement de données.

Ce projet vise à démontrer notre capacité à concevoir et à mettre en œuvre un flux de travail ETL efficace, tout en traitant les défis courants tels que les nettoyages de données et Intégration de l'Infrastructure Data Lake .

I. Introduction :

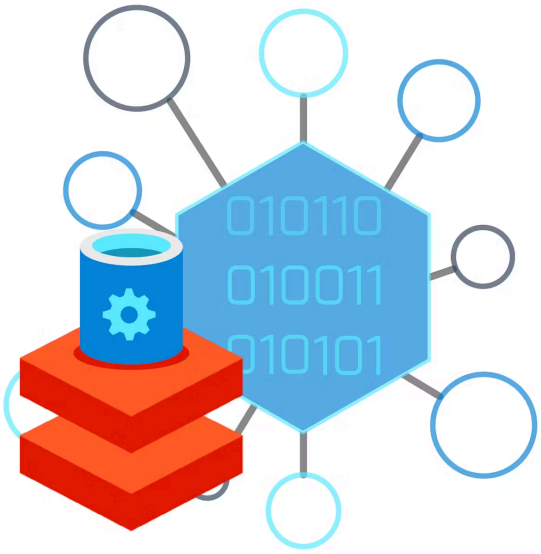
1. Contexte de projet :

Avec l'urbanisation croissante et la demande de mobilité, il est essentiel d'avoir une vue claire des opérations de transport. Les données, allant des horaires des bus aux retards, peuvent offrir des perspectives pour améliorer les services et répondre aux besoins des citoyens.

En tant que developpeur Data, le professionnel en charge de cette situation est sollicité pour mettre en place des solutions basées sur les données pour répondre à ces défis. Cela implique:

L'objectif principal de ce travail se résume à " ETL , Azure Data Bricks "

- Conception de l'Architecture Data Lake .
- Intégration de l'Infrastructure Data Lake .
- Processus ETL avec Azure Data bricks .
- Automatisation des Politiques de Conservation.
- Génération de données à intervalles de lots (Batch Intervals).
- Batch Processing.



Azure Databricks

2. Planification du plan du brief :

Dans l'objectif de bien mener le Brief, j'ai commencé par établir le planning à suivre durant la période de brief .

Pour ce faire, j'ai d'abords décomposé mon projet en phases, où chaque phase est définie par un certain nombre de tâches. Ensuite, j'ai élaboré une planification de ces phases sur la durée du projet, à l'aide d'un diagramme de Gantt.

2.1. Etapes Suivie :

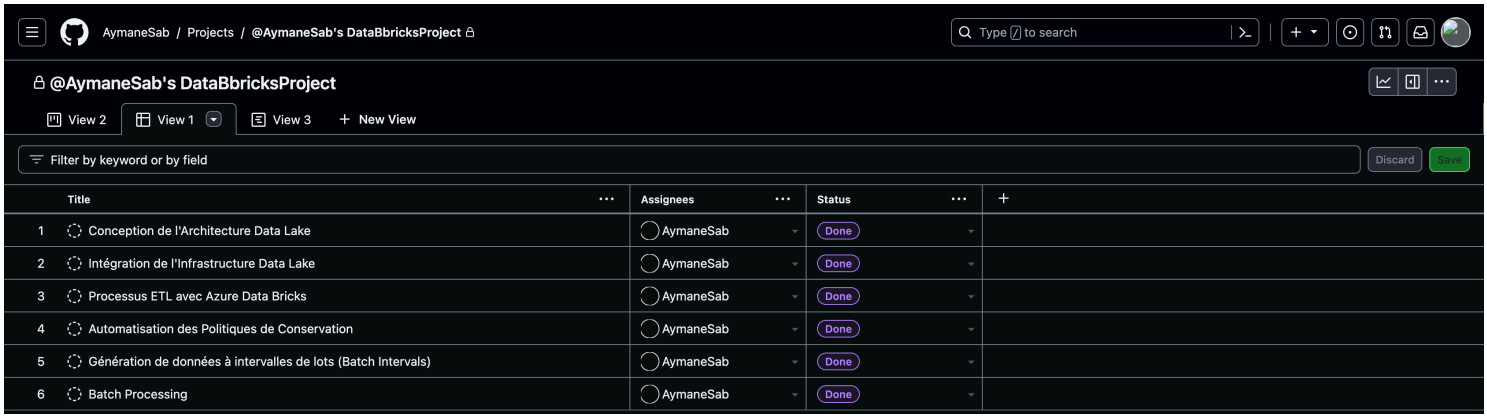
Les étapes suivies sont :

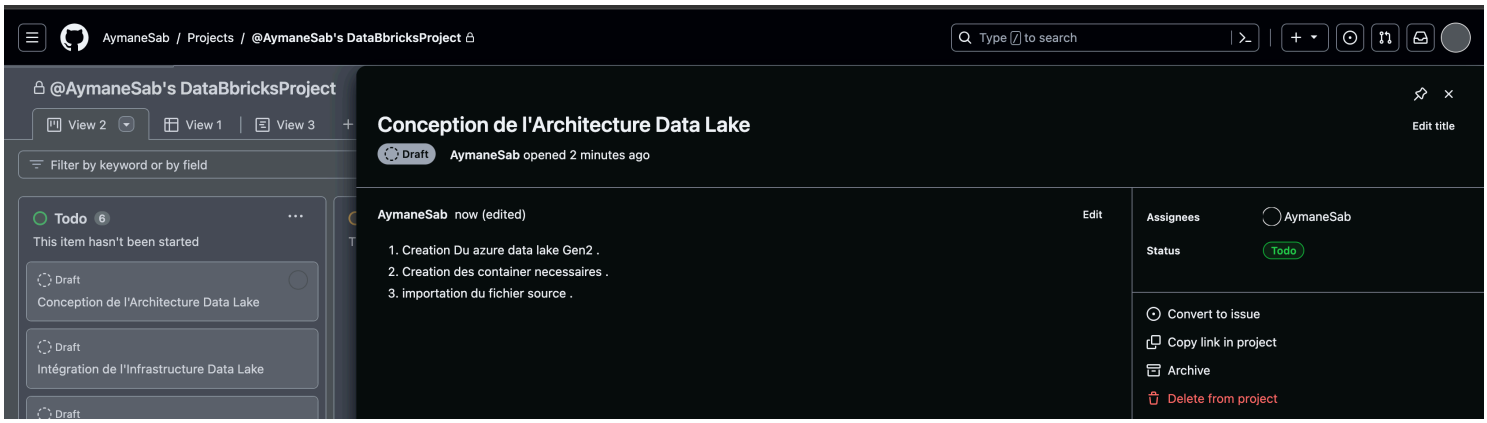
- Conception de l'Architecture Data Lake .
- Intégration de l'Infrastructure Data Lake .
- Processus ETL avec Azure Data Bricks .
- Automatisation des Politiques de Conservation.
- Génération de données à intervalles de lots (Batch Intervals).
- Batch Processing.

Suite à ces étapes j'ai identifié les besoins à satisfaire, définit l'aspect fonctionnel de projet et sa conception, réalisé le système et finalement je l'ai soumis à plusieurs tests pour s'assurer de son adaptation aux besoins exprimés précédemment.

2.2. Diagramme de Gant :

Ce diagramme représente la durée de chaque tâche effectué dans mon projet.



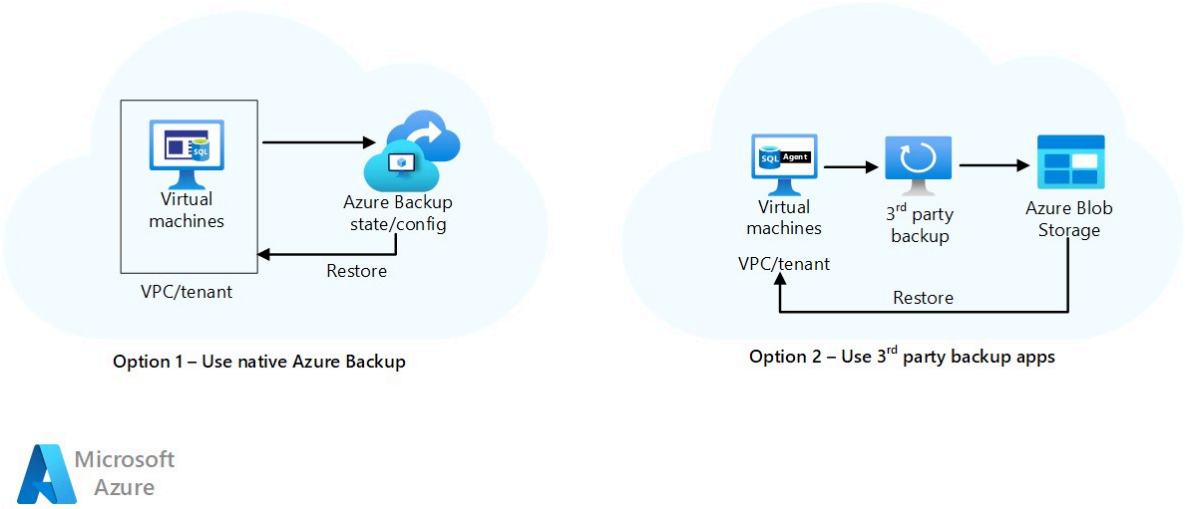


II. Realisation :

1. Vue D'ensemble sur les ressource azure utilisées .

Nous avons utilisé une variété de composants et services azure pour mettre en œuvre notre flux de travail ETL. Parmi les ressources clés, citons :

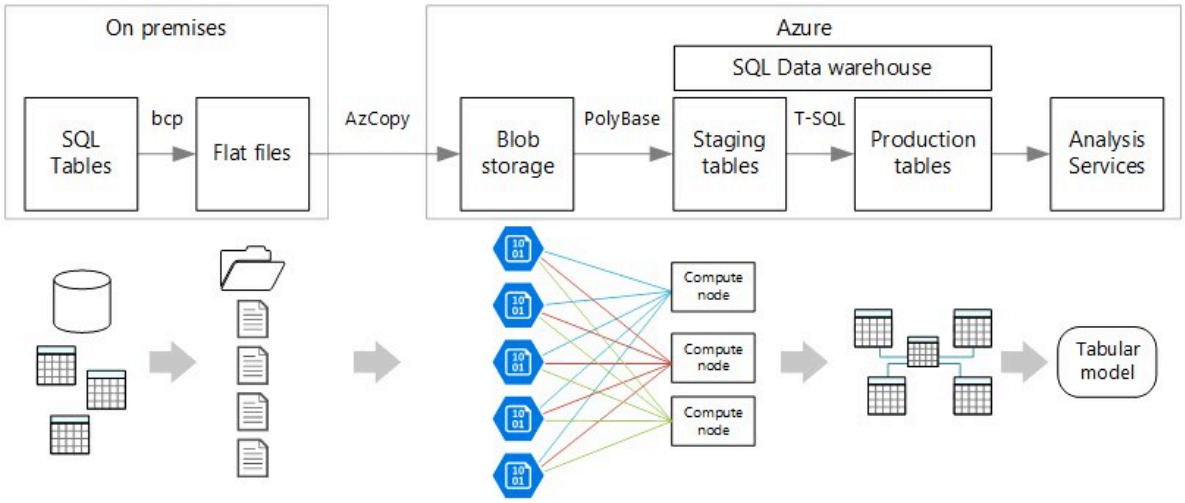
- Azure Blob Storage :



Microsoft Azure

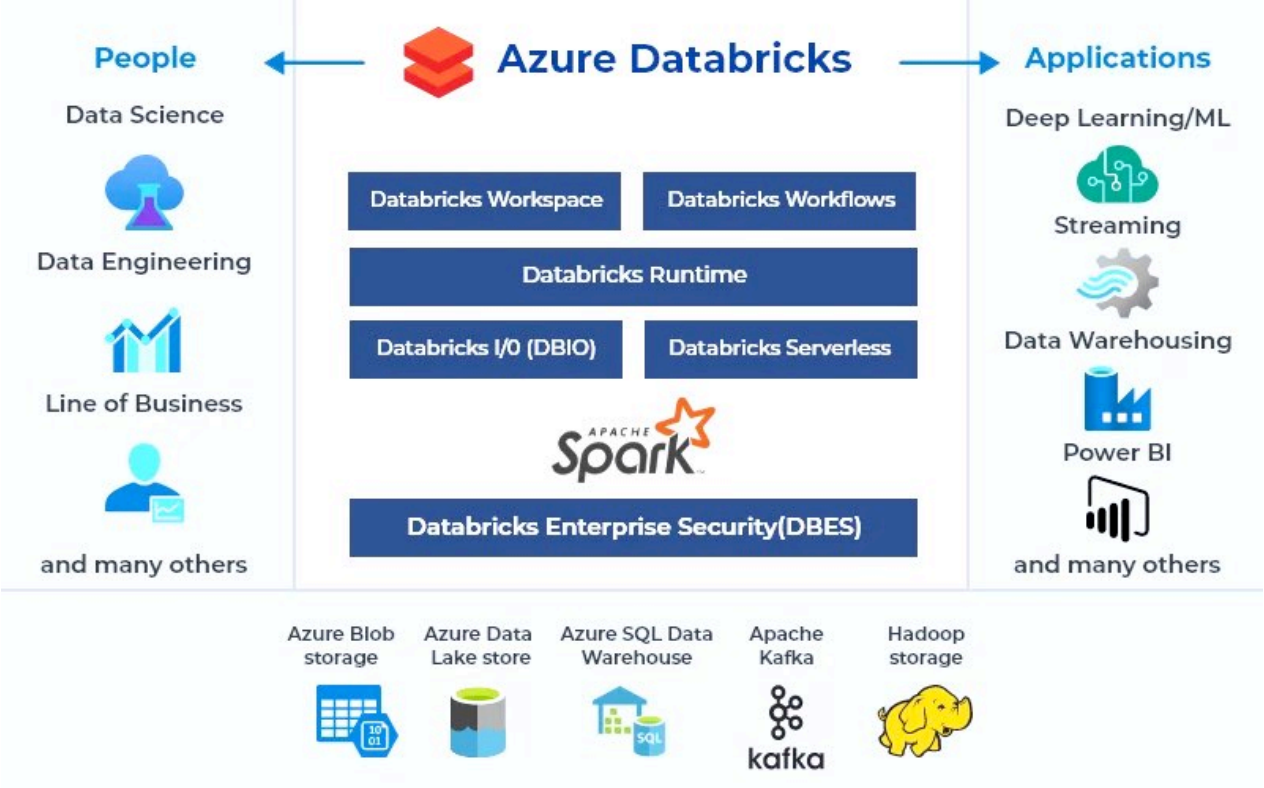
Azure Blob Storage is a highly scalable and cost-effective cloud storage service provided by Microsoft Azure. It is designed for the storage of unstructured data, also known as "blobs," which can include anything from documents, images, videos, and backups to log files, datasets, and more. Blob Storage offers a secure and reliable way to store and manage vast amounts of data in the cloud.

- Azure Data Factory :



Azure Data Factory (ADF) is a cloud-based data integration service provided by Microsoft Azure. It serves as a platform for creating, scheduling, and managing data- driven workflows, often referred to as data pipelines. ADF allows organizations to efficiently move, transform, and process data from various sources to destinations, making it an essential tool for modern data management and processing.

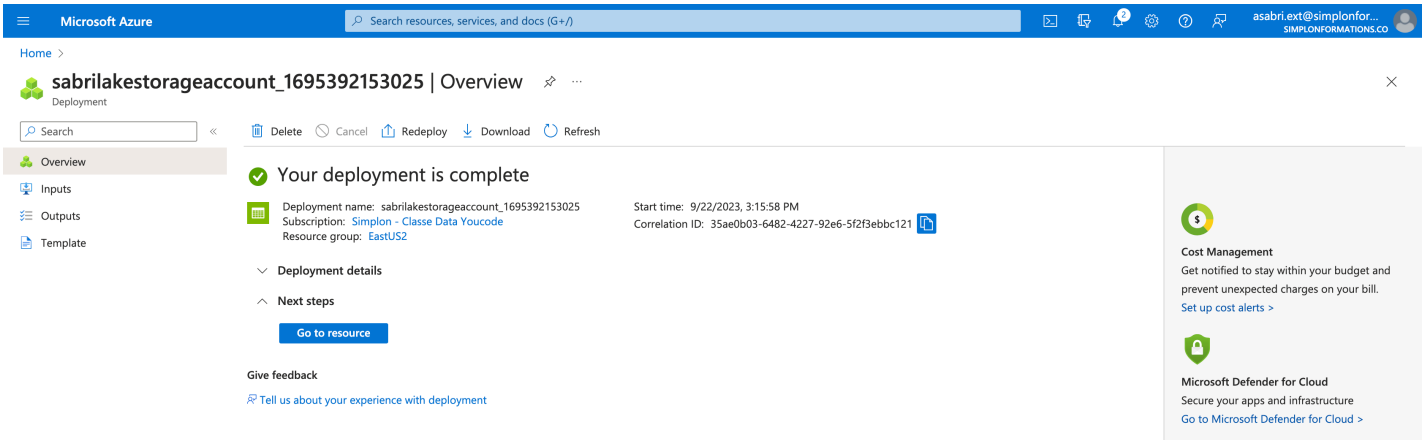
- Azure Data Bricks :

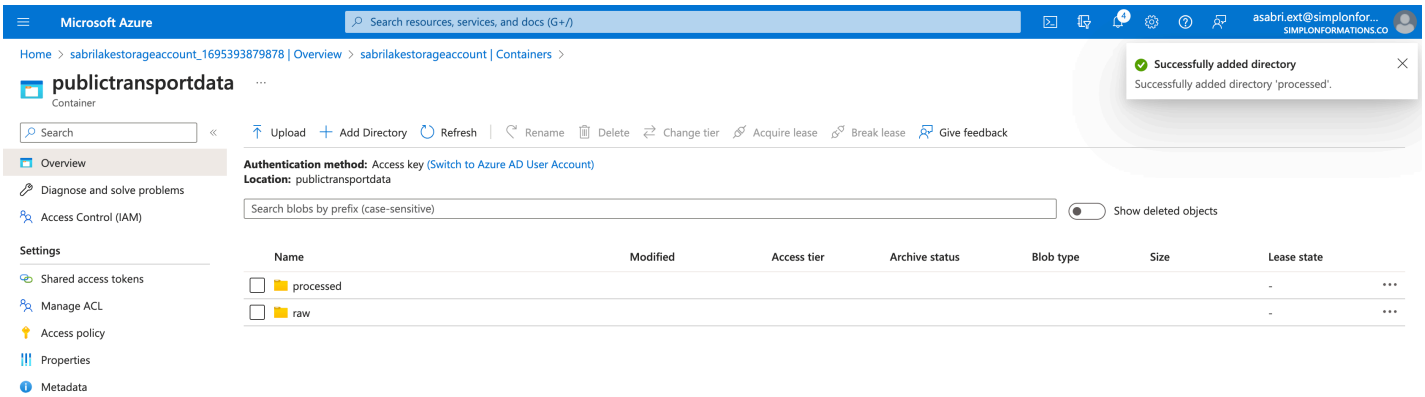


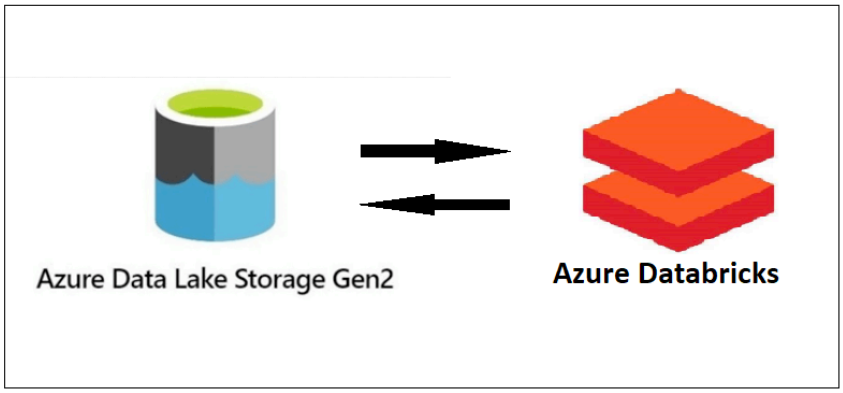
Azure Synapse Analytics, formerly known as SQL Data Warehouse, is a cloud-based analytics service provided by Microsoft Azure. It is designed to enable organizations to analyze and gain insights from large volumes of data in a highly scalable and performance-oriented manner. Azure Synapse Analytics brings together big data and data warehousing capabilities into a unified platform, making it easier for businesses to ingest, prepare, manage, and analyze data for various data-driven applications.

2. Creation du data lake :

Azure Data Lake Storage Gen2 is a cloud-based data lake solution provided by Microsoft Azure. It's designed to store and manage large amounts of data for analytics and big data processing.

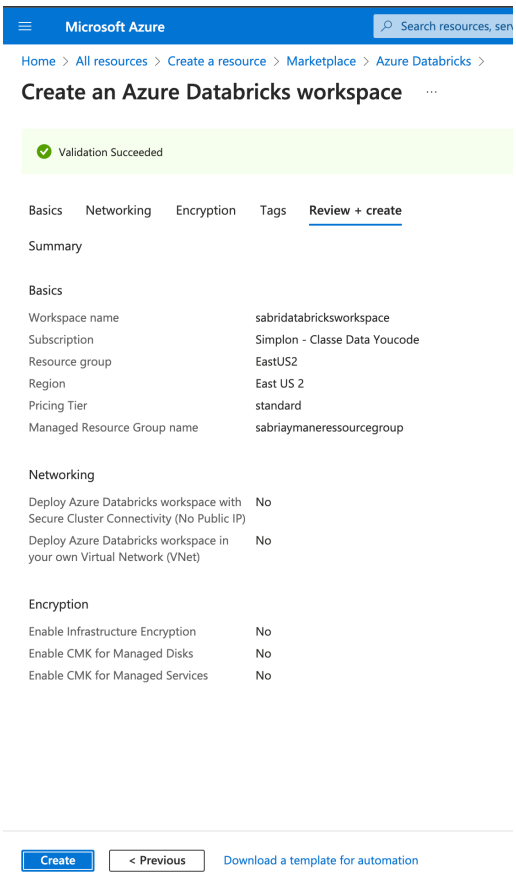


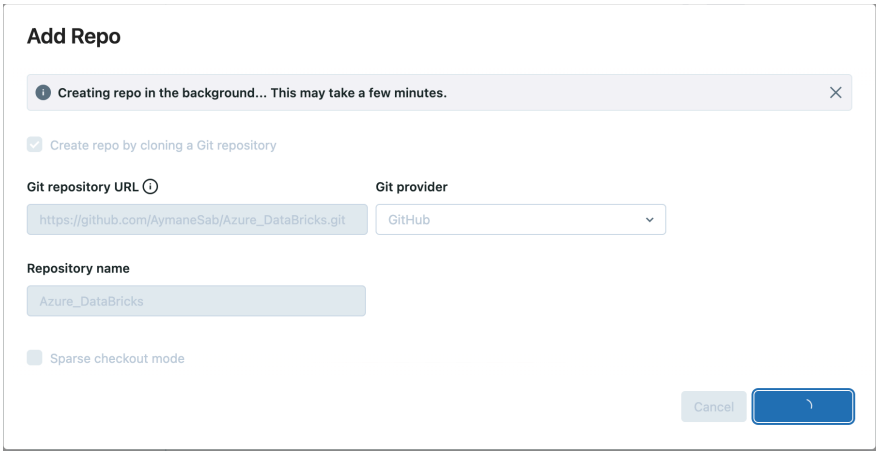


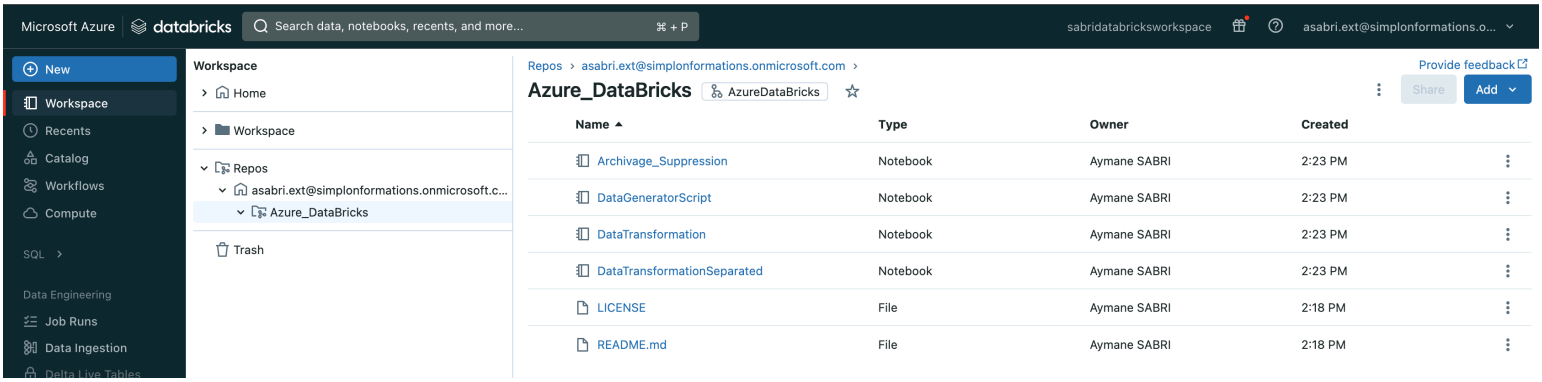


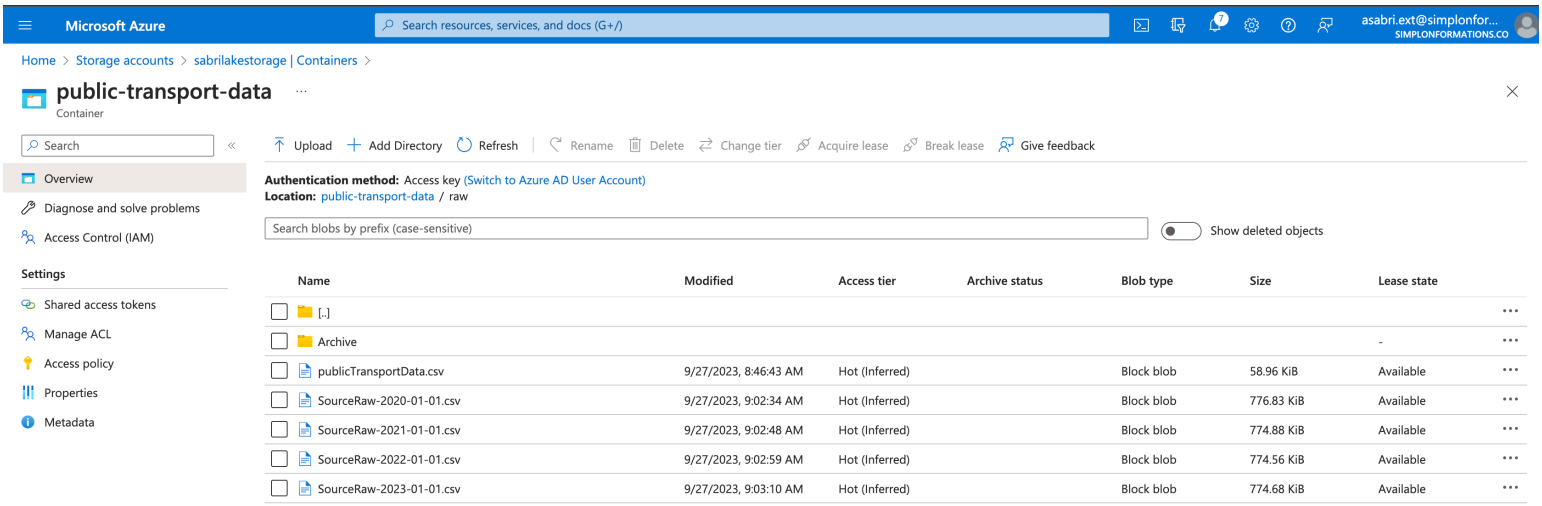
3. Processus ETL avec Azure Data Bricks :

Azure Databricks est une plateforme de traitement des données cloud qui simplifie et accélère le processus ETL (Extract, Transform, Load).








Microsoft Azure
Search resources, services, and docs (G+/)
asabri.ext@simplonfor...
SIMPLONFORMATIONS.CO
Home > Storage accounts > sabrilakestorage | Containers >
public-transport-data
Container
Search
Overview
Diagnose and solve problems
Access Control (IAM)
Settings
Shared access tokens
Manage ACL
Access policy
Properties
Metadata
Upload
Add Directory
Refresh
Rename
Delete
Change tier
Acquire lease
Break lease
Give feedback
Authentication method: Access key (Switch to Azure AD User Account)
Location: public-transport-data / raw
Search blobs by prefix (case-sensitive)
Show deleted objects
Name
Modified
Access tier
Archive status
Blob type
Size
Lease state
[..]
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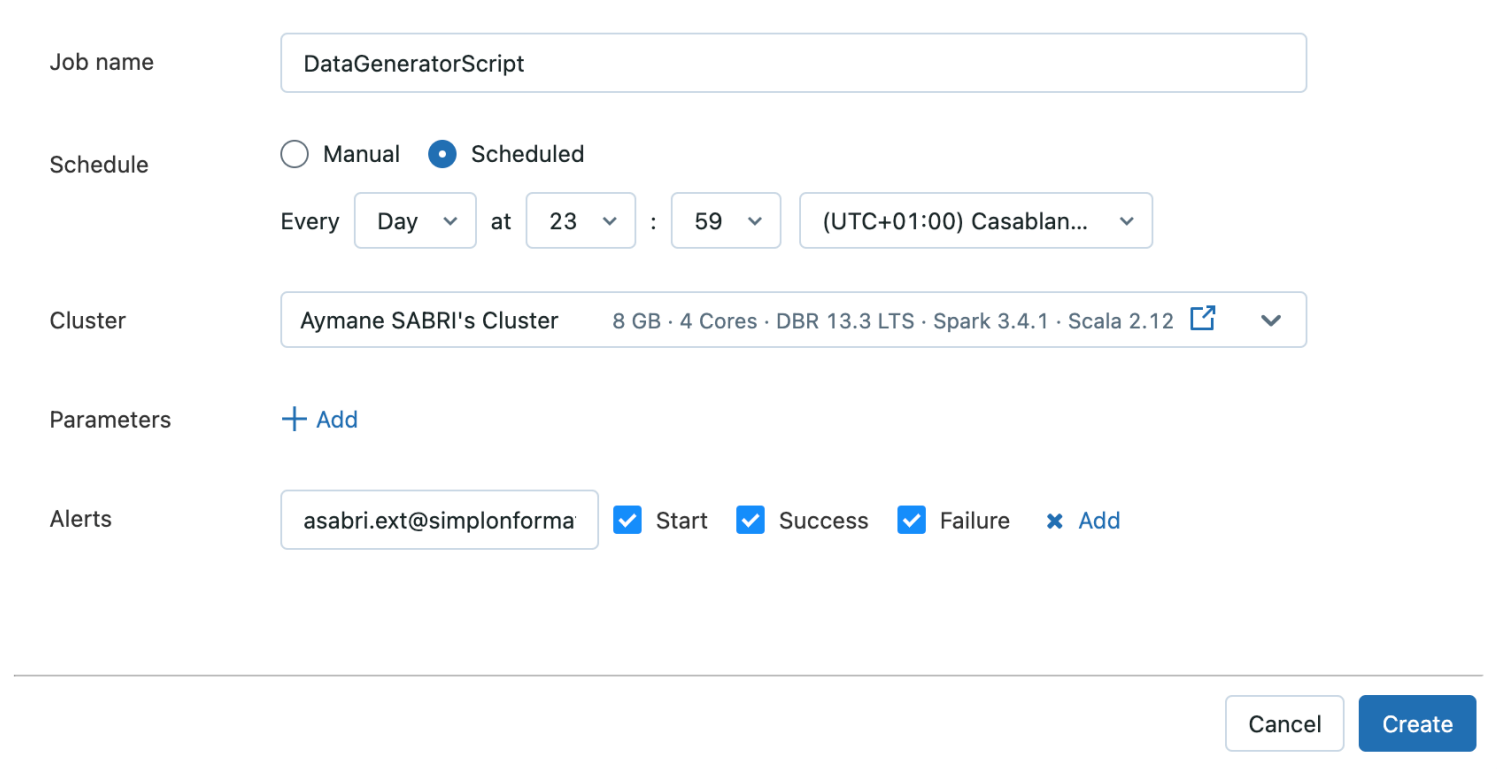
Job name
DataGeneratorScript
Schedule
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Every
Day
at
23
:
59
(UTC+01:00) Casablan...
Cluster
Aymane SABRI's Cluster
8 GB · 4 Cores · DBR 13.3 LTS · Spark 3.4.1 · Scala 2.12
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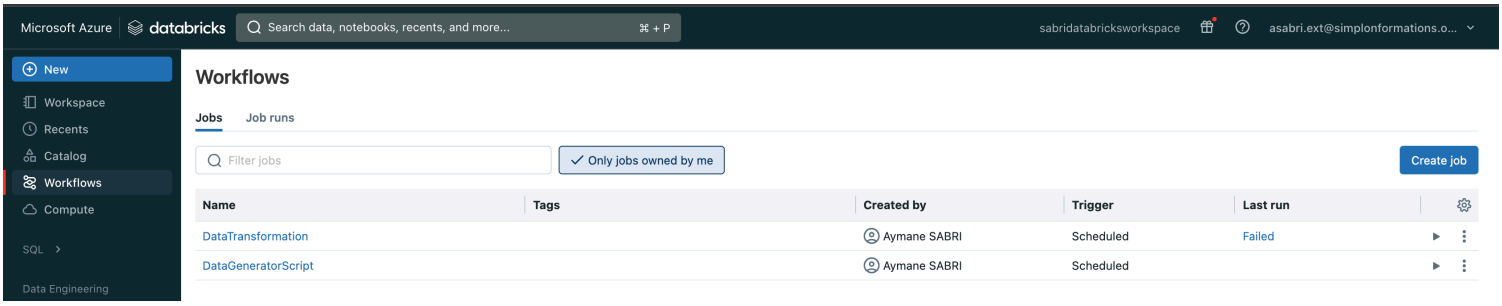
Failure
Add
Cancel
Create


Microsoft Azure
databricks
Search data, notebooks, recents, and more...
⌘ + P
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New
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Recents
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Filter jobs
Only jobs owned by me
Create job
Name
Tags
Created by
Trigger
Last run
DataTransformation
Aymane SABRI
Scheduled
Failed
DataGeneratorScript
Aymane SABRI
Scheduled

Job details

Job ID	870954637039866
Creator	Aymane SABRI
Run as	Aymane SABRI
Tags	+Tag

Git

Repository URL	github.com/AymaneSab/Azure_DataBricks
Branch	AzureDataBricks

Edit Git settings | Remove Git settings

Schedule

Every hour (UTC+01:00 — Casablanca, Monrovia)

Edit schedule | Pause | Delete

Compute

Aymane SABRI's Cluster

Driver: Standard_F4 · Workers: Standard_F4 · 0 workers · 13.3 LTS
(includes Apache Spark 3.4.1, Scala 2.12)

View details | Swap | Spark UI | Logs | Metrics

Job run settings

Maximum concurrent runs

1

Edit concurrent runs

Duration thresholds