Apache Airflow Setup on Windows using Docker

1. Introduction

Apache Airflow allows you to schedule, monitor, and manage workflows with ease. Having it on your Windows PC can be a game-changer for your data engineering and automation projects.

In this guide, we will install **Docker Desktop**, set up **Apache Airflow** using **Docker Compose**, and create an **Admin user** to access the Airflow UI.

2. Prerequisites

1. **Docker Desktop** – Download and install:
   https://www.docker.com/products/docker-desktop

2. **Visual Studio Code (VS Code)** – Download and install:
   https://code.visualstudio.com/

3. Project Setup

Step 1: Download Airflow Docker Compose File

Download the official docker-compose.yaml file for Airflow:

curl -LfO 'https://airflow.apache.org/docs/apache-airflow/2.7.3/docker-compose.yaml'

Step 2: Create .env File

Open **VS Code** and create a new file named .env.
Add the following lines:

AIRFLOW_IMAGE_NAME=apache/airflow:2.4.2

AIRFLOW_UID=50000

```
.env
1    AIRFLOW_IMAGE_NAME=apache/airflow:2.4.2
2    AIRFLOW_UID=50000
```

Step 3: Start Airflow Services

Run the following command to start Airflow containers:

docker-compose up -d

```
PS C:\Users\harci\Materilas> docker-compose up -d
>>
time="2025-08-18T15:43:31+05:30" level=warning msg="C:\\Users\\harci\\Materilas\\docker
-compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove i
t to avoid potential confusion"
[+] Running 7/7
 ✓ Container materilas-redis-1              Heal...                         1.5s
 ✓ Container materilas-postgres-1           H...                            1.5s
 ✓ Container materilas-airflow-worker-1     Started                        10.0s
 ✓ Container materilas-airflow-scheduler-1  Started                         9.9s
 ✓ Container materilas-airflow-webserver-1  Started                        10.0s
 ✓ Container materilas-airflow-triggerer-1  Started                        10.0s
 ✓ Container materilas-airflow-init-1       Exited                          8.9s
```

Step 4: Create Admin User

Run the following command to create an **Admin user** for Airflow:

docker-compose run airflow-worker airflow users create \

   --role Admin \

   --username admin \

   --email admin \

   --firstname admin \

   --lastname admin \

   --password admin

```
PS C:\Users\harci\Materilas> docker-compose run airflow-worker airflow users create --r
ole Admin --username admin --email admin --firstname admin --lastname admin --password
admin
time="2025-08-18T15:56:26+05:30" level=warning msg="C:\\Users\\harci\\Materilas\\docker
-compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove i
t to avoid potential confusion"
[+] Creating 2/2
 ✓ Container materilas-redis-1       Running                                      0.0s
 ✓ Container materilas-postgres-1   Running                                      0.0s
[+] Running 3/3
 ✓ Container materilas-redis-1            Healthy                                 0.5s
 ✓ Container materilas-postgres-1        Health...                               0.5s
 ✓ Container materilas-airflow-init-1  St...                                     0.2s
```

4. Access Apache Airflow UI

- Open your browser and visit: **http://localhost:8080**

- Login with the credentials you created:

    ○ **Username:** admin

    ○ **Password:** admin

Airflow Dashboard with Example DAGs

5. Verify Running Containers

To check if services are running:

docker ps

7. Conclusion

You have successfully installed **Apache Airflow on Windows** using Docker.
Now you can:

- Add custom **DAGs** to the dags/ folder.

- Schedule, run, and monitor workflows from the **Airflow UI**.