



**IBM Developer  
SKILLS NETWORK**

# Hands-on Lab: Getting started with Apache Airflow

Estimated time needed: **20** minutes

## Objectives

After completing this lab you will be able to:

- Start Apache Airflow.
- Open the Airflow UI in a browser.
- List all the DAGs.
- List the tasks in a DAG.
- Explore a DAG in the UI.

## About Skills Network Cloud IDE

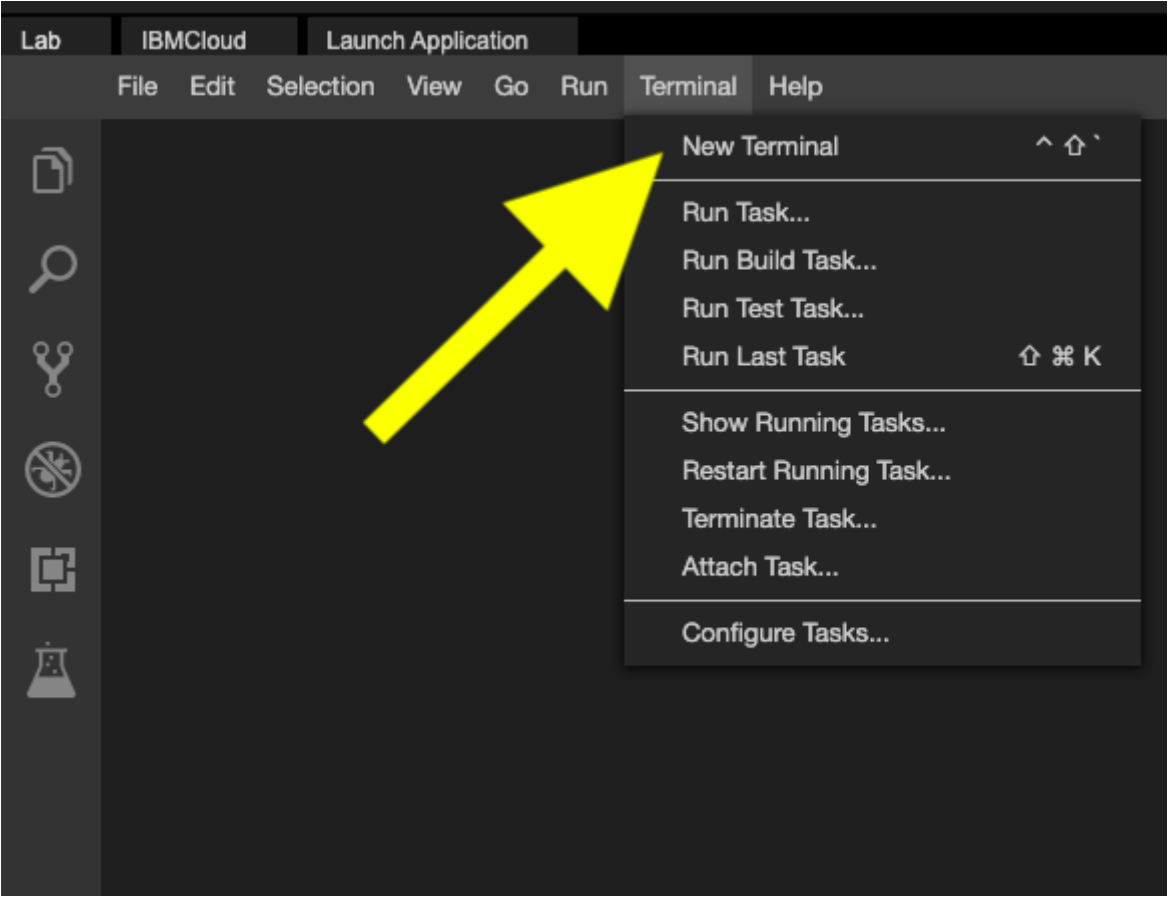
Skills Network Cloud IDE (based on Theia and Docker) provides an environment for hands on labs for course and project related labs. Theia is an open source IDE (Integrated Development Environment), that can be run on desktop or on the cloud. To complete this lab, we will be using the Cloud IDE based on Theia running in a Docker container.

## Important Notice about this lab environment

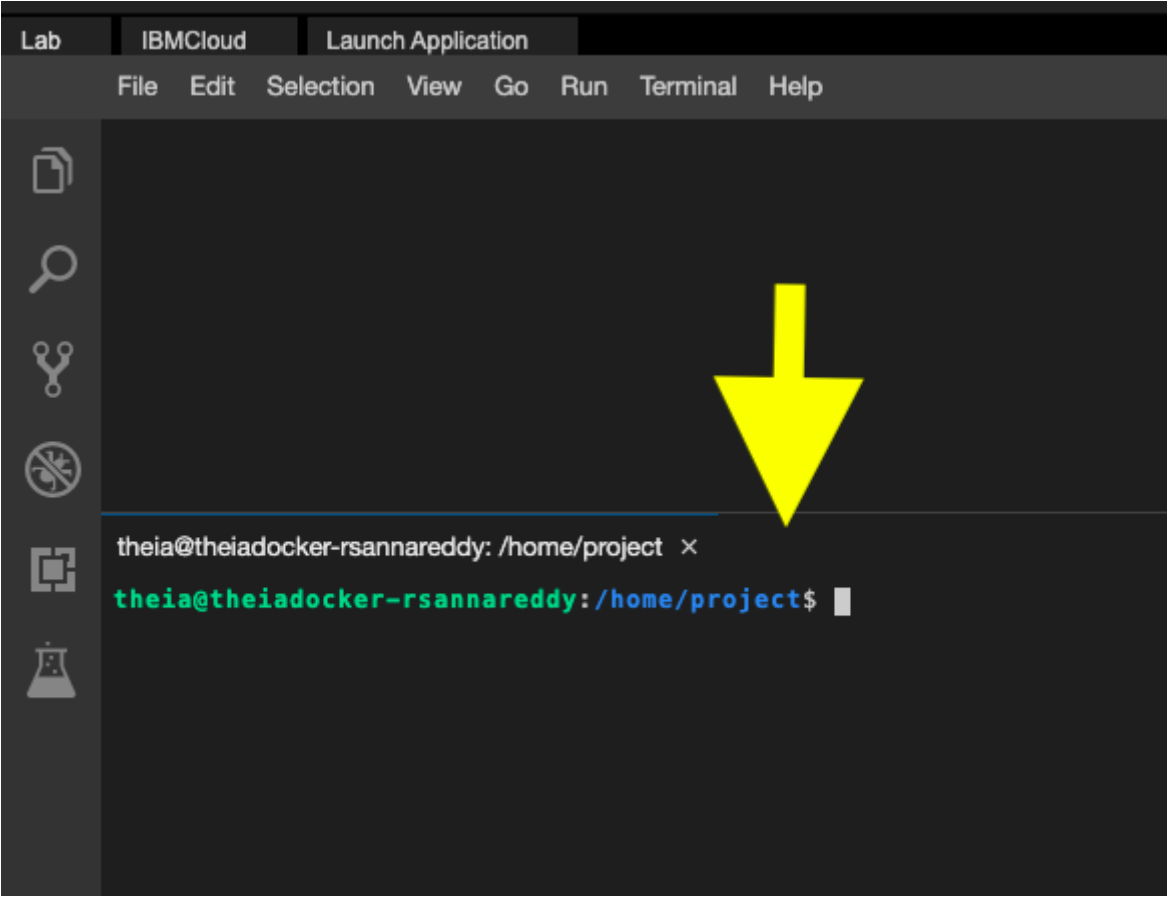
Please be aware that sessions for this lab environment are not persistent. A new environment is created for you every time you connect to this lab. Any data you may have saved in an earlier session will get lost. To avoid losing your data, please plan to complete these labs in a single session.

## Exercise 1 - Start Apache Airflow

Open a new terminal by clicking on the menu bar and selecting **Terminal->New Terminal**, as shown in the image below.



This will open a new terminal at the bottom of the screen as in the image below.



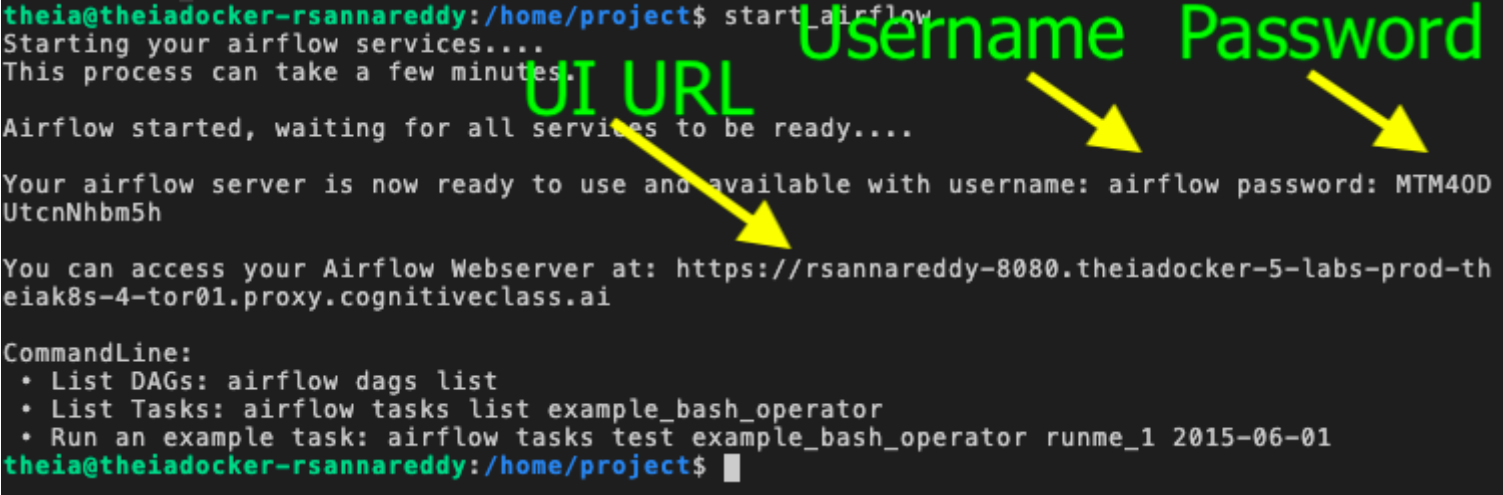
Run the commands below on the newly opened terminal. (You can copy the code by clicking on the little copy button on the bottom right of the codeblock below and paste it wherever you wish.)

Run the command below in the terminal to start Apache Airflow.

```
start_airflow
```

Please be patient, it may take upto 5 minutes for airflow to get started.


When airflow starts successfully, you should see an output similar to the one below.



# Exercise 2 - Open the Airflow Web UI

Copy the Web-UI URL and paste it on a new browser tab. You can also click on the URL by holding the control key (Command key in case of a Mac).

You should land at a page that looks like this:

 Airflow

Security

Browse

Admin

Docs

06:06 UTC 

→ Log In

Skills Network Airflow

All 32

Active 0


Paused 32

Filter DAGs by tag

Search DAGs

DAG	Owner	Runs	Schedule	Last Run	Recent Tasks	Actions	Links
<div><div><div></div></div><div>example_bash_operator</div><div><div>example</div><div>example2</div></div></div> <div>airflow</div> <div><div></div><div></div><div></div></div> <div>0 0 ***</div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>▶</div><div>↺</div><div>🗑</div></div> <div>...</div>	<div><div><div></div></div><div>example_branch_datetime_operator_2</div><div><div>example</div></div></div> <div>airflow</div> <div><div></div><div></div><div></div></div> <div>@daily</div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>▶</div><div>↺</div><div>🗑</div></div> <div>...</div>	<div><div><div></div></div><div>example_branch_dop_operator_v3</div><div><div>example</div></div></div> <div>airflow</div> <div><div></div><div></div><div></div></div> <div>* / 1 * * * *</div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>▶</div><div>↺</div><div>🗑</div></div> <div>...</div>	<div><div><div></div></div><div>example_branch_labels</div><div><div></div></div></div> <div>airflow</div> <div><div></div><div></div><div></div></div> <div>@daily</div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>▶</div><div>↺</div><div>🗑</div></div> <div>...</div>	<div><div><div></div></div><div>example_branch_operator</div><div><div>example</div><div>example2</div></div></div> <div>airflow</div> <div><div></div><div></div><div></div></div> <div>@daily</div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>▶</div><div>↺</div><div>🗑</div></div> <div>...</div>	<div><div><div></div></div><div>example_complex</div><div><div>example</div><div>example2</div><div>example3</div></div></div> <div>airflow</div> <div><div></div><div></div><div></div></div> <div>None</div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>▶</div><div>↺</div><div>🗑</div></div> <div>...</div>	<div><div><div></div></div><div>example_dag_decorator</div><div><div>example</div></div></div> <div>airflow</div> <div><div></div><div></div><div></div></div> <div>None</div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>▶</div><div>↺</div><div>🗑</div></div> <div>...</div>	<div><div><div></div></div><div>example_external_task_marker_child</div><div><div>example2</div></div></div> <div>airflow</div> <div><div></div><div></div><div></div></div> <div>None</div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>▶</div><div>↺</div><div>🗑</div></div> <div>...</div>

You can Unpause/Pause a DAG using the Unpause/Pause toggle button.

 Airflow

Security

Browse

Admin

Docs

Skills Network Airflow

All 32

Active 0

Paused 32

DAG

Owner

example\_bash\_operator

example

example2

airflow


example\_branch\_datetime\_operator\_2

example

airflow

Pause/Unpause DAG

An unpaused DAG looks like this:

 Airflow

Security

Browse

Admin

Docs

Skills Network Airflow

All 32

Active 0

Paused 32

DAG

Owner

example\_bash\_operator

example

example2


airflow

example\_branch\_datetime\_operator\_2

example

airflow

Click on a DAG to explore more about the DAG.

 Airflow

Security

Browse

Admin

Docs

☐

example\_xcom

example

airflow

☐

example\_xcom\_args

example

airflow

☐

example\_xcom\_args\_with\_operators

example

airflow

☐

latest\_only

example2 example3

airflow

☐

latest\_only\_with\_trigger

example3

airflow

☐

test\_utils

example

airflow

☐

tutorial

example

airflow


☐

tutorial\_etl\_dag

ETL DAG tutorial

airflow

Click on the Tree View button to see the tree view of the DAG.

 Airflow

Security

Browse

Admin

☐

DAG: tutorial\_etl\_dag

ETL DAG tutorial

☒ Tree View

☐ Graph View

☐ Calendar View

DAG Docs

2021-07-06T06:40:25Z

Runs

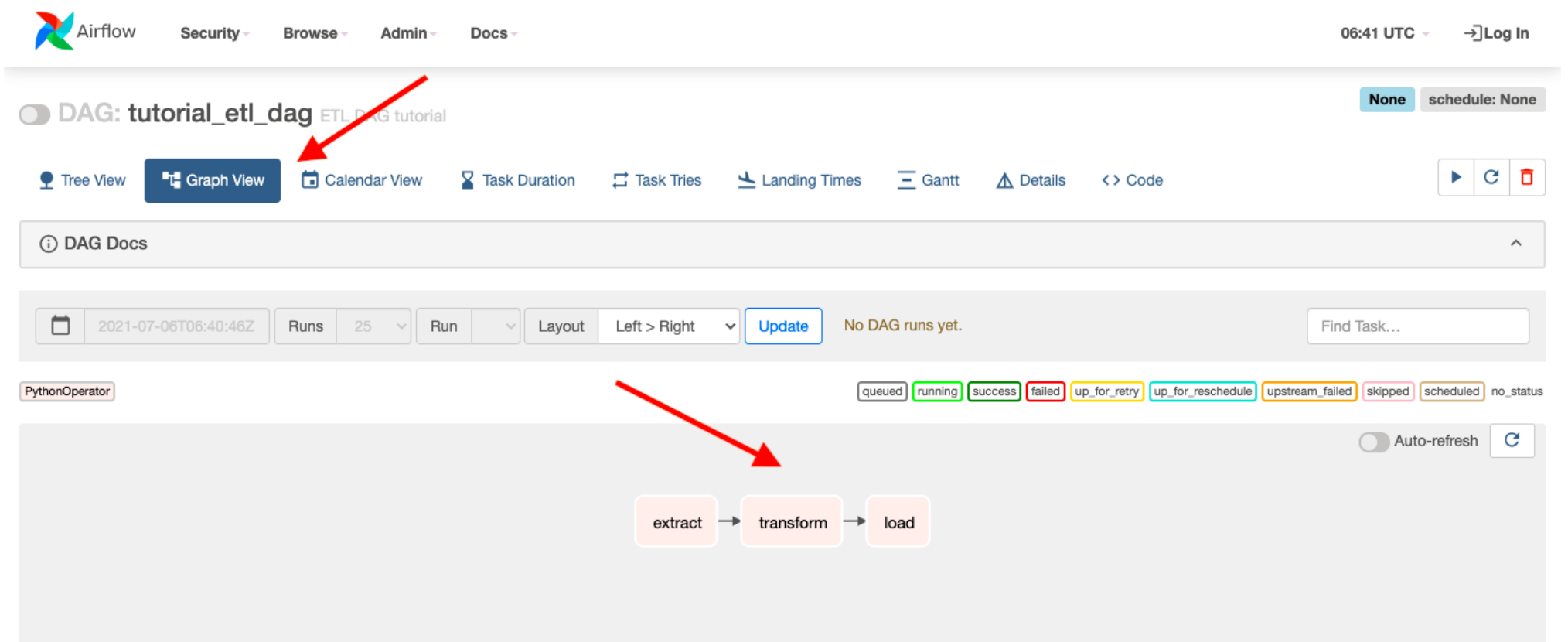
25

Up

☐ PythonOperator



Click on the Graph View button to see the graph view of the DAG.



## Exercise 3 - List all DAGs

Apache airflow gives us some handy command line options to work with.

Run the command below in the terminal to list out all the existing DAGs.

```
airflow dags list
```

## Exercise 4 - List tasks in a DAG

Run the command below in the terminal to list out all the tasks in the DAG named `example_branch_operator`.

```
airflow tasks list example_branch_operator
```

Here `example_branch_operator` is the name of the DAG.

Try listing out the tasks for the DAG `tutorial`.

## Exercise 5 - Pause/Unpause a DAG

Run the command below in the terminal to unpause a DAG.

```
airflow dags unpause tutorial
```

Here `tutorial` is the name of the DAG.

Pause a DAG.

```
airflow dags pause tutorial
```

Try to unpause the DAG named `example_branch_operator`.

## Practice exercises

1. Problem:

```
List tasks for the DAG example_branch_labels.
```

- ▶ Click here for Hint
- ▼ Click here for Solution

```
airflow tasks list example_branch_labels
```

2. Problem:

```
Unpause the DAG example_branch_labels.
```

- ▶ Click here for Hint
- ▼ Click here for Solution

```
airflow dags unpause example_branch_labels
```

3. Problem:

```
Pause the DAG example_branch_labels.
```

- ▶ Click here for Hint
- ▼ Click here for Solution

```
airflow dags pause example_branch_labels
```

# Authors

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# Other Contributors

Rav Ahuja

# Change Log

Date (YYYY-MM-DD)	Version	Changed By	Change Description
2021-07-05	0.1	Ramesh Sannareddy	Created initial version of the lab

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