

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

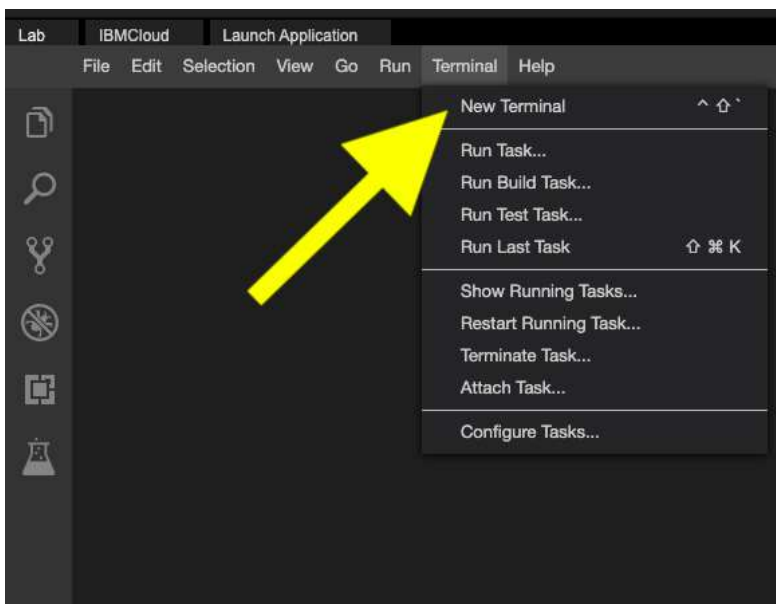
Skills Network Cloud IDE (based on Theia and Docker) provides an environment for hands on labs for course and project related labs. Theia is an open source IDE (Integrated Development Environment), that can be run on desktop or on the cloud. To complete this lab, we will be using the Cloud IDE based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

Important Notice about this lab environment

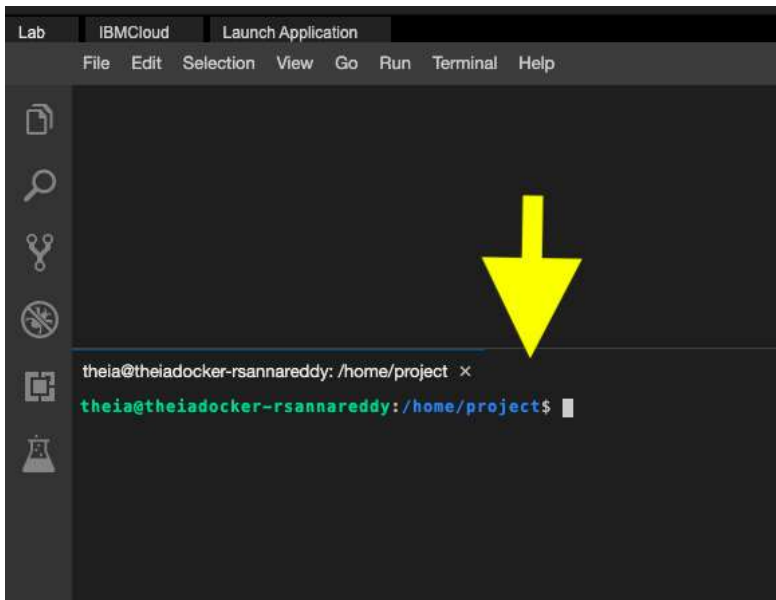
Please be aware that sessions for this lab environment are not persistent. A new environment is created for you every time you connect to this lab. Any data you may have saved in an earlier session will get lost. To avoid losing your data, please plan to complete these labs in a single session.

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.)

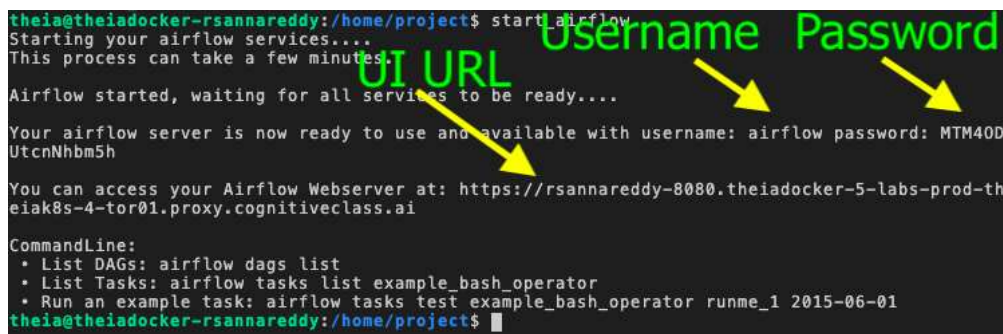
Run the command below in the terminal to start Apache Airflow.

1. 1
1. start_airflow

Copied!

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

All32Active0Paused32

Filter DAGs by tag

DAG	Owner	Runs	Schedule	Last Run	Recent Tasks
<div><div><div>example_bash_operator</div><div>exampleexample2</div></div><div></div></div>	airflow	<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>example_branch_datetime_operator_2</div><div>example</div></div><div></div></div>	airflow	<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>example_branch_dop_operator_v3</div><div>example</div></div><div></div></div>	airflow	<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>example_branch_labels</div></div><div></div></div>	airflow	<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>example_branch_operator</div><div>exampleexample2</div></div><div></div></div>	airflow	<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>example_complex</div><div>exampleexample2example3</div></div><div></div></div>	airflow	<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>example_dag_decorator</div><div>example</div></div><div></div></div>	airflow	<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>example_external_task_marker_child</div><div>example2</div></div><div></div></div>	airflow	<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>

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

Airflow

Security

Browse

Admin

Docs

Skills Network Airflow

All32Active0Paused32

Pause/Unpause DAG

example_bash_operator

exampleexample2

example_branch_datetime_operator_2

example

airflow

airflow

An unpaused DAG looks like this:

Airflow

Security

Browse

Admin

Docs

Skills Network Airflow

All32Active0Paused32

example_bash_operator

exampleexample2

example_branch_datetime_operator_2

example

airflow

airflow

Click on a DAG to explore more about the DAG.

about:blank

3/5

The screenshot shows the Apache Airflow web interface. At the top, there's a navigation bar with 'Airflow' logo and links for 'Security', 'Browse', 'Admin', and 'Docs'. Below this is a list of DAGs. Each entry includes a toggle switch, the DAG name, a tag, and the owner 'airflow'. The DAGs listed are: 'example_xcom' (tag: example), 'example_xcom_args' (tag: example), 'example_xcom_args_with_operators' (tag: example), 'latest_only' (tags: example2, example3), 'latest_only_with_trigger' (tag: example3), 'test_utils' (tag: example), 'tutorial' (tag: example), and 'tutorial_etl_dag' (tag: ETL DAG tutorial). A red arrow points to the 'tutorial_etl_dag' entry.

Click on the Grid button to see the grid view of the DAG.

The screenshot shows the Apache Airflow web interface for a specific DAG. At the top, there's a navigation bar with 'Airflow' logo and links for 'Security', 'Browse', 'Admin', and 'Docs'. Below this is a header for 'DAG: dummy_dag' with the subtitle 'My first DAG'. A navigation bar contains buttons for 'Grid', 'Graph', 'Calendar', 'Task Duration', 'Task Tries', and 'Landing Times'. A red arrow points to the 'Grid' button. Below the navigation bar is a filter section with a date range '04/01/2023 - 11:40:04 am', a dropdown for '25', and dropdowns for 'All Run Types' and 'All Run States'. A 'Clear Filters' button is also present.

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

The screenshot shows the Apache Airflow web interface for a specific DAG in graph view. At the top, there's a navigation bar with 'Airflow' logo and links for 'Security', 'Browse', 'Admin', and 'Docs'. Below this is a header for 'DAG: dummy_dag' with the subtitle 'My first DAG'. A navigation bar contains buttons for 'Grid', 'Graph', 'Calendar', 'Task Duration', 'Task Tries', and 'Landing Times'. A red arrow points to the 'Graph' button. Below the navigation bar is a filter section with a date range '04/01/2023 - 11:40:04 am', a dropdown for '25', and dropdowns for 'All Run Types' and 'All Run States'. A 'Clear Filters' button is also present. Below the filter section is a legend for task states: 'queued', 'running', 'success', 'failed', 'up_for_retry', 'up_for_reschedule', 'upstream_failed', 'skipped', 'scheduled', and 'no_status'. Below the legend is a graph showing three tasks: 'task1' -> 'task2' -> 'task3'. An 'Auto-refresh' button is also present.

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.

1. 1
1. airflow dags list

Copied!

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_bash_operator.

1. 1
1. airflow tasks list example_bash_operator

Copied!

Here example_bash_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.

```
1. 1
1. airflow dags unpause tutorial
```

Copied!

Here tutorial is the name of the DAG.

Pause a DAG.

```
1. 1
1. airflow dags pause tutorial
```

Copied!

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

2. Problem:
Unpause the DAG example_branch_Labels.
- Click here for Hint
► Click here for Solution

3. Problem:
Pause the DAG example_branch_Labels.
- Click here for Hint
► Click here for Solution

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Change Log

Date (YYYY-MM-DD)	Version	Changed By	Change Description
2023-05-04	0.2	Benny Li	Minor formatting changes
2021-07-05	0.1	Ramesh Sannareddy	Created initial version of the lab

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