End Lab 01:37:37

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Console

Username
student-02-fc5572b2d37l

Password
xyYRt91e6cNM

GCP Project ID
qwiklabs-gcp-00-e58d37(

Running ML Pipelines on Kubeflow 2.5

30/30

2 hours Free ★★★★½

Overview

In this lab, you learn how to configure and create an AI Platform Pipelines instance. After you configure the AI Platform Pipelines instance, you run an example pipeline and visualize the pipeline graph to see the different metrics, logs, and parameters that are available.

Objectives

In this lab, you perform the following tasks:

- Create a Kubernetes cluster and configure AI Platform pipelines
- Launch pipelines dashboard
- Create and run an experiment from an example end-to-end ML Pipeline
- Examine and verify the output of each step
- Inspect the pipeline graph, various metrics, logs, charts and parameters

Setup and Requirements

Before you click the Start Lab button

Read these instructions. Labs are timed and you cannot pause them. The timer, which starts when you click **Start Lab**, shows how long Google Cloud resources will be made available to you.

This Qwiklabs hands-on lab lets you do the lab activities yourself in a real cloud environment, not in a simulation or demo environment. It does so by giving you new, temporary credentials that you use to sign in and access Google Cloud for the duration of the lab.

What you need

To complete this lab, you need:

- Access to a standard internet browser (Chrome browser recommended).

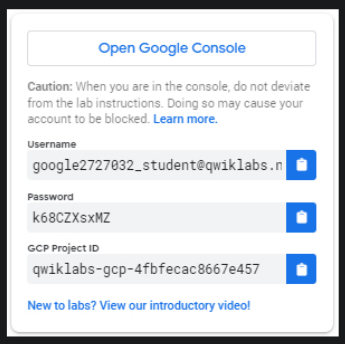
- Time to complete the lab.

Note: If you already have your own personal Google Cloud account or project, do not use it for this lab.

Note: If you are using a Pixelbook, open an Incognito window to run this lab.

How to start your lab and sign in to the Console

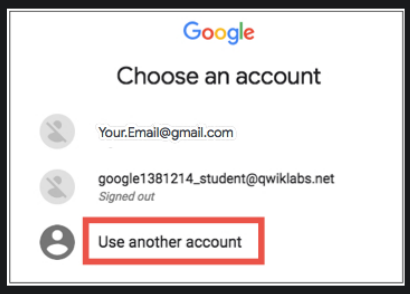
1. Click the **Start Lab** button. If you need to pay for the lab, a pop-up opens for you to select your payment method. On the left is a panel populated with the temporary credentials that you must use for this lab.



2. Copy the username, and then click **Open Google Console**. The lab spins up resources, and then opens another tab that shows the **Choose an account** page.

   Tip: Open the tabs in separate windows, side-by-side.

3. On the Choose an account page, click **Use Another Account**.



4. The Sign in page opens. Paste the username that you copied from the Connection Details panel. Then copy and paste the password.

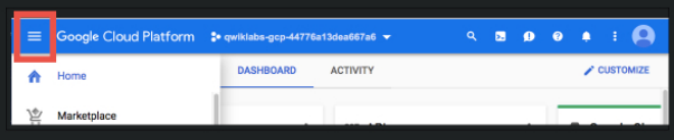
   Important: You must use the credentials from the Connection Details panel. Do not use your Qwiklabs credentials. If you have your own GCP account, do not use it for this lab (avoids incurring charges).

5. Click through the subsequent pages:

   - Accept the terms and conditions.
   - Do not add recovery options or two-factor authentication (because this is a temporary account).
   - Do not sign up for free trials.

After a few moments, the GCP console opens in this tab.

Note: You can view the menu with a list of GCP Products and Services by clicking the **Navigation menu** at the top-left, next to "Google Cloud Platform".

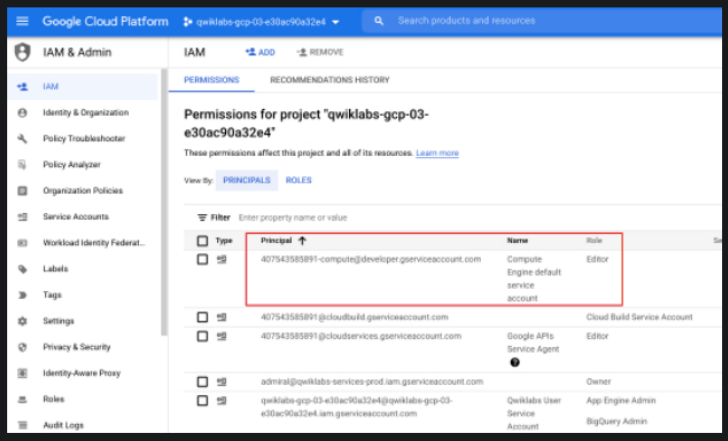


Check project permissions

Before you begin your work on Google Cloud, you need to ensure that your project has the correct permissions within Identity and Access Management (IAM).

1. In the Google Cloud console, on the **Navigation menu** (☰), click **IAM & Admin** > **IAM**.

2. Confirm that the default compute Service Account `{project-number}-compute@developer.gserviceaccount.com` is present and has the `editor` role assigned. The account prefix is the project number, which you can find on **Navigation menu** > **Home**.



If the account is not present in IAM or does not have the `editor` role, follow the steps below to assign the required role.

- In the Google Cloud console, on the **Navigation menu**, click **Home**.
- Copy the project number (e.g. `729328892908`).
- On the **Navigation menu**, click **IAM & Admin** > **IAM**.
- At the top of the **IAM** page, click **Add**.
- For **New principals**, type:

```
{project-number}-compute@developer.gserviceaccount.com
```

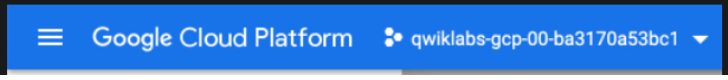
Replace `{project-number}` with your project number.

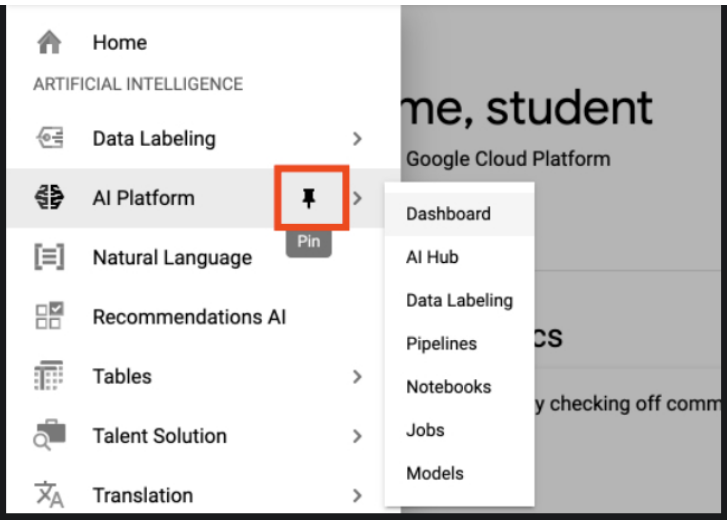
- For **Role**, select **Project** (or Basic) > **Editor**. Click **Save**.

Task 1. Set up an AI Platform Pipelines instance

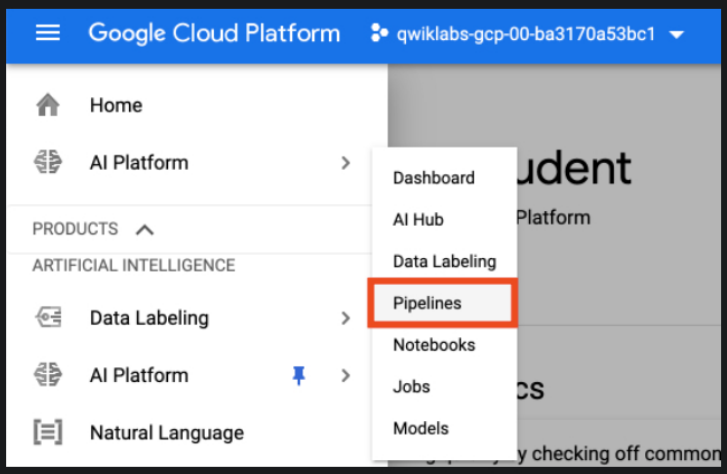
In this task, you deploy Kubeflow Pipelines as a Kuberenetes App, which are solutions with simple click to deploy to Google Kubernetes Engine and that have the flexibility to deploy to Kubernetes clusters on-premises or in third-party clouds. You will see Kubeflow Pipelines integrated into your Google Cloud environment as **AI Platform Pipelines**. If interested, learn more about Kubeflow Pipelines in the documentation during installation steps.

1. From the the Navigation menu, scroll down to **AI Platform** and pin the section for easier access later in the lab.

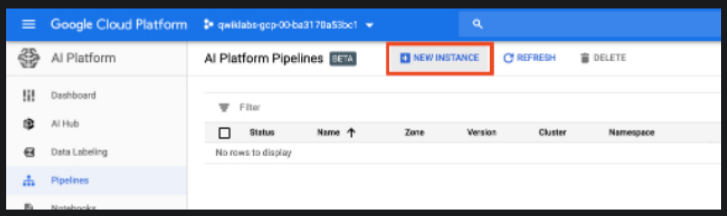




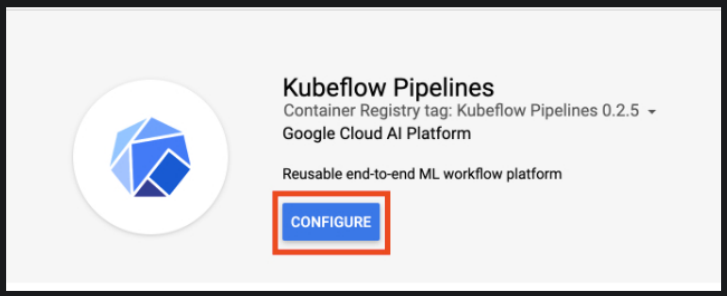
2. Click **Pipelines**.



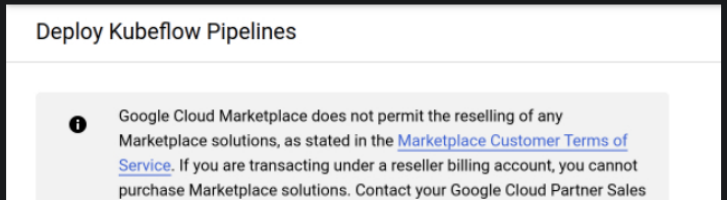
3. Then click **New Instance**.

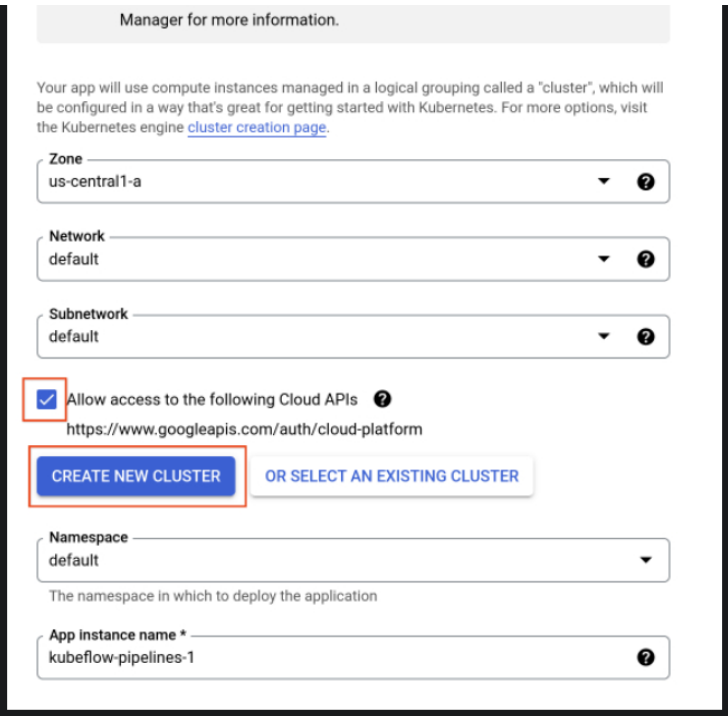


4. Click **Configure**.



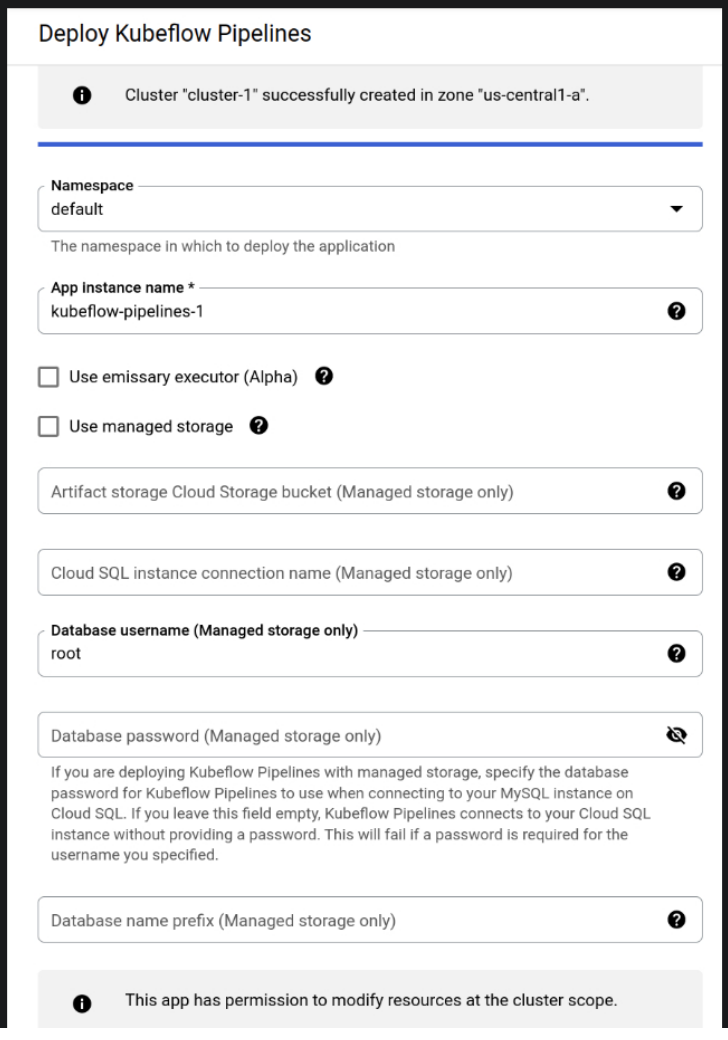
5. Check **Allow access to the following Cloud APIs**, leave the name as is, and then click **Create New Cluster**.

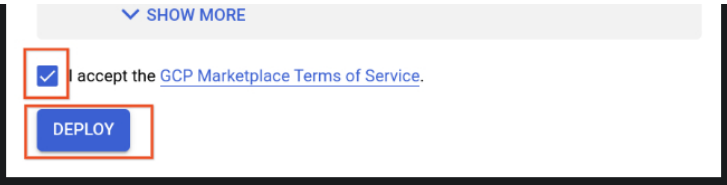




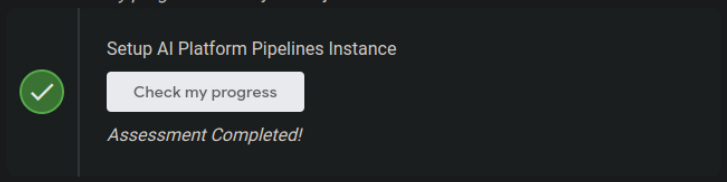
This should take 2-3 minutes to complete. Wait for the cluster to finish before proceeding to the next step. In the first tab opened, you can view the Cluster Creation taking place in the GKE section of the Cloud Console, or see the individual VMs spinning up in the GCE section of the Cloud Console.

6. When the cluster creation is complete, check the **Terms of Service** box, leave other settings unchanged, and then click **Deploy**. You will see the individual services of KFP deployed to your GKE cluster. Proceed to the next step while installation occurs.





Click *Check my progress* to verify the objective.



Task 2. Run an example pipeline

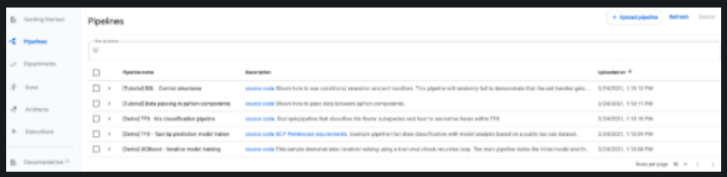
1. In the Google Cloud Console, on the Navigation menu, click **AI Platform** > **Pipelines**.

You will see the newly created Pipelines instance. If needed, click **Refresh** to update the page.

2. Click on the **OPEN PIPELINES DASHBOARD** link next to your instance name.

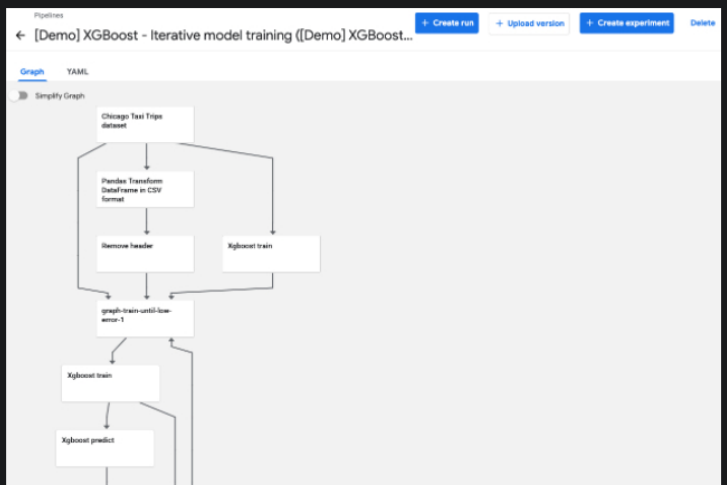
3. On the new page that loads, on the Navigation Menu on the left, click on **Pipelines**.

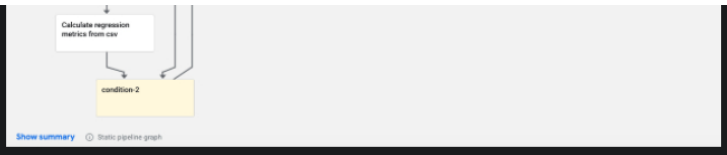
You will see a list of pipelines that have been provided for demo and tutorial purposes. For this lab, you will use the **[Demo] XGBoost - Iterative model training** sample pipeline. This sample demonstrates continuous training using a train-eval-check recursive loop, in which the model is trained iteratively until the model evaluation metrics are adequate.



4. Click on the **[Demo] XGBoost - Iterative model training** pipeline.

When it loads, you can see what the graph for this pipeline looks like. Next, you will create a run to test this pipeline.





5. Click on **Create experiment** on the top right to associate a new experiment for the run.

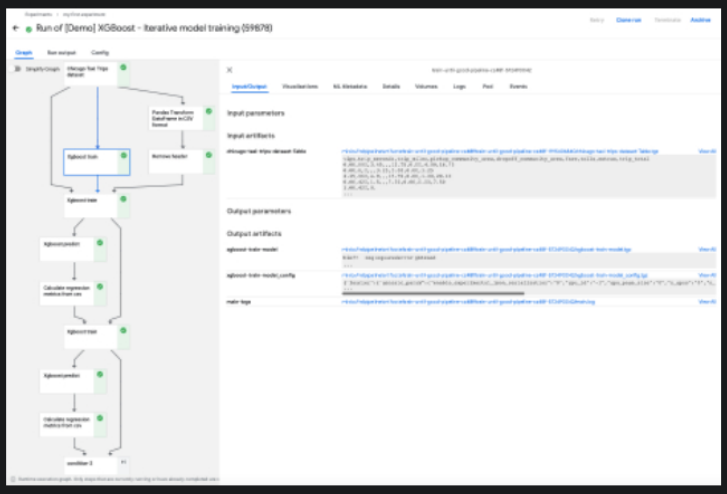
6. Enter the name **my-first-experiment** in the form that loads, and then click **Next**.

7. Leave the default options, and click **Start** to run the pipeline. The pipeline run may take a few minutes to complete.

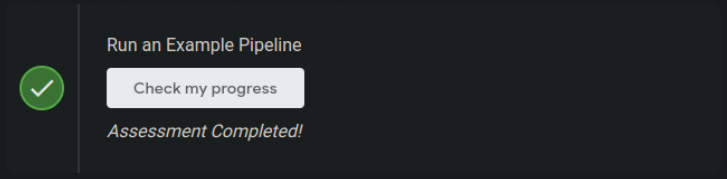
You can click **Refresh** to update the page and see the latest status.

8. Once the pipeline run has finished, you can click on the run name to see the fully generated graph as well as performance metrics and graphs.

The green check marks means every part of the pipeline ran successfully. You can click on any box and see the outputs for that part like input/output, visualizations, logs, events, etc.



Click *Check my progress* to verify the objective.



Congratulations!

In this lab, you used Kubeflow Pipelines to create and orchestrate an ML pipeline on Cloud AI Platform.

Manual Last Updated January 04, 2022
Lab Last Tested January 04, 2022