



NTU Academy for Professional
and Continuing Education

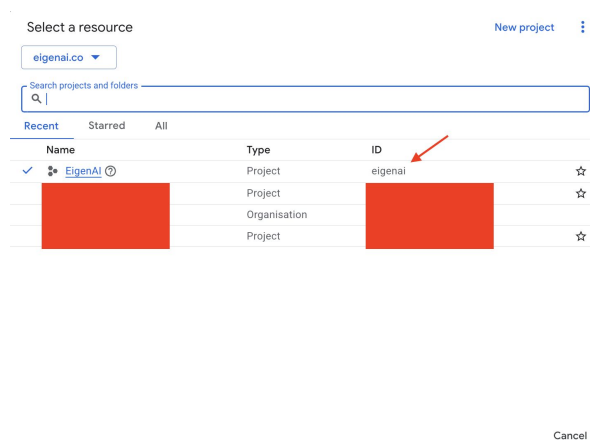
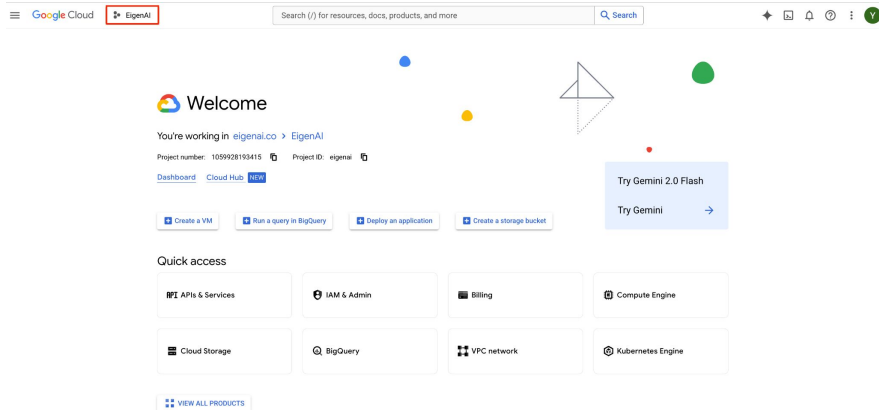
(SCTP) Advanced
Professional Certificate

Data Science and AI



1. Setting up GCP

- Set up an account here: <https://console.cloud.google.com/>
 - Use your email account to sign up (doesn't have to be gmail)
 - Choose a name for your GCP Project
 - Note that GCP project ID has to be globally unique across all GCP users
 - You can retrieve your Project ID by clicking the button shown below left:



1. Setting up GCP

- Note that you may also be asked to create a billing account (by inputting your credit card)
 - If the above step is not done, in lesson 2.2, when you are asked to download a file from GCS, you may encounter the following error:
 - '403 error Billing account not not set up'
 - You may also encounter similar error in lesson 2.5 when you have to create tables in BigQuery

2. Give yourself 'BigQuery Admin' rights

- Search for 'IAM' in the top search bar
 - IAM: Identity and Access Management
 - Click on the 'Edit principal' button next to your email



2. Give yourself 'BigQuery Admin' rights

- Click '+ Add another role' - search for 'BigQuery Admin'
- Click 'Save'
- You should see this:

The screenshot shows the Google Cloud IAM interface for a project named "My First Project". At the top, there are tabs for "Allow", "Deny", and "Recommendations history", with "Allow" being the active tab. Below the tabs, the title "Permissions for project 'My First Project'" is displayed, followed by a note: "These permissions affect this project and all of its resources. [Learn more](#)".

Below the title, there are two tabs: "View by principals" (active) and "View by roles". Under "View by principals", there are two buttons: "+ Grant access" and "- Remove access".

A search bar labeled "Filter" with the placeholder text "Enter property name or value" is located above a table. The table has the following columns: "Type", "Principal", "Name", "Role", "Security insights", and an edit icon. The table contains one entry for the principal "wongchenpang@gmail.com", which has the name "Chen Pang Wong" and the role "BigQuery Admin". The "Security insights" column for this entry shows "Owner".

Type	Principal	Name	Role	Security insights	
<input type="checkbox"/>	wongchenpang@gmail.com	Chen Pang Wong	BigQuery Admin	Owner	

3. Install gcloud CLI

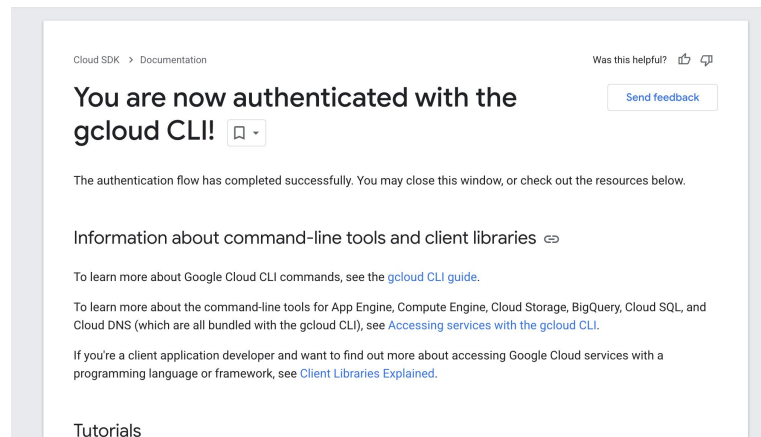
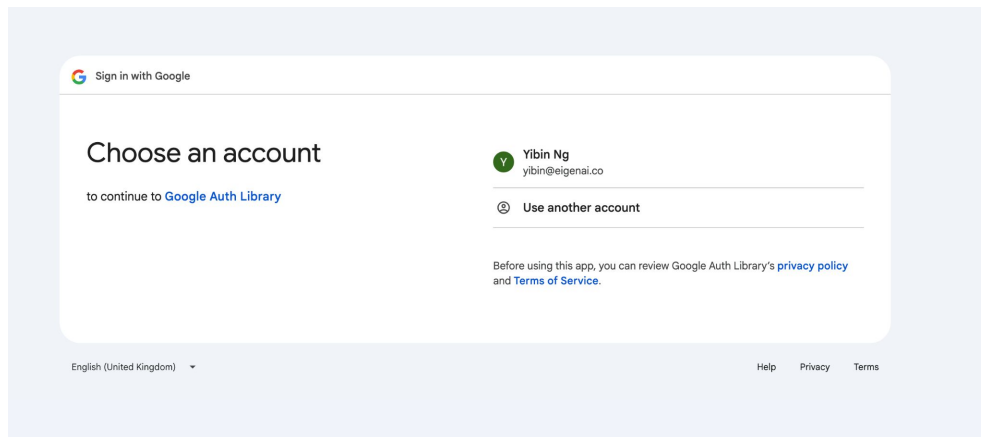
- Follow instructions here: <https://cloud.google.com/sdk/docs/install>
- Windows WSL users, please follow here: <https://cloud.google.com/sdk/docs/downloads-snap>
- Once `gcloud init` is done, to authenticate your computer to your GCP account, run:
 - WSL users: `gcloud auth application-default login`
 - Mac users: `./google-cloud-sdk/bin/gcloud auth application-default login`
 - Copy and paste the link provided into a browser

```
ngyibin@Ngs-MacBook-Pro Programs % ./google-cloud-sdk/bin/gcloud auth application-default login
Your browser has been opened to visit:

  https://accounts.google.com/o/oauth2/auth?response_type=code&client_id=764086051850-6qr4p6gpi6hn506pt8ejuq83di341hur.apps.googleusercontent.c
085%2F&scope=openid+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fuserinfo.email+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloud-platform+https%3A%2F
login&state=nSjR3VNjk0bhfCDNATcBe3g1Sws7LP&access_type=offline&code_challenge=XUg26U7TrUC2E-hhA2XwHjZKvpL8xfQTztYP8QVxLEg&code_challenge_method=S
```

3. Install gcloud CLI

- Log in as per usual
 - Make sure the email account is the same as the one you used to set up your GCP account!



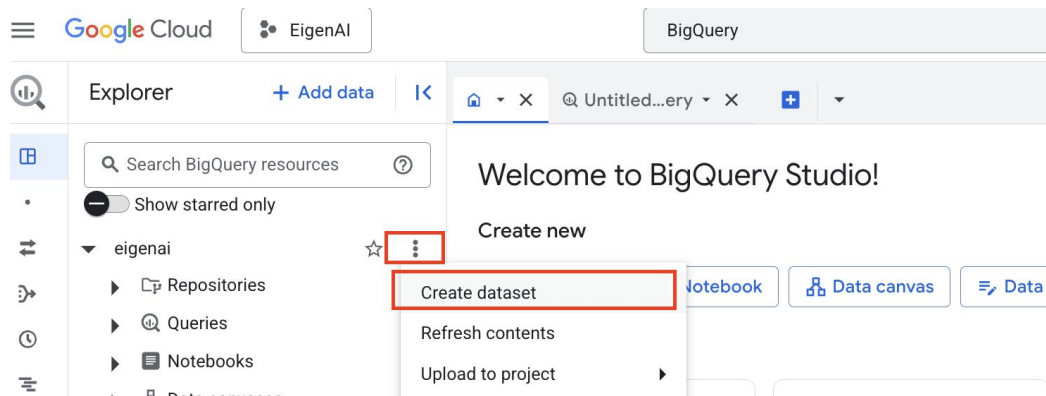
3. Install gcloud CLI

- Now that you are authenticated, test out the below in your command prompt:
 - `gsutil ls`
 - You should see your Google Cloud Storage buckets (if any)
 - `bq query --use_legacy_sql=false 'SELECT name FROM `bigquery-public-data.usa_names.usa_1910_current` LIMIT 10'`
 - You should see the below:

```
+-----+  
|  name  |  
+-----+  
| Mary   |  
| Annie  |  
| Anna   |  
| Margaret |  
| Helen  |  
| Elsie  |  
| Lucy   |  
| Dorothy |  
| Mary   |  
| Margaret |  
+-----+
```


4. Create 'snapshots' folder in BQ

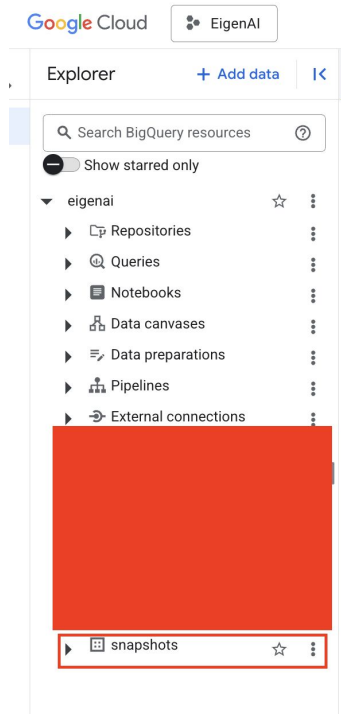
- This is in preparation for the lesson on DBT (Lesson 2.5)
- Go to BigQuery, click on the 3 dots next to your project ID, click 'Create dataset':



- Enter 'snapshots' as the Dataset ID
- Use the default location type ('Multi-region' - 'US')
- Click 'Create dataset'

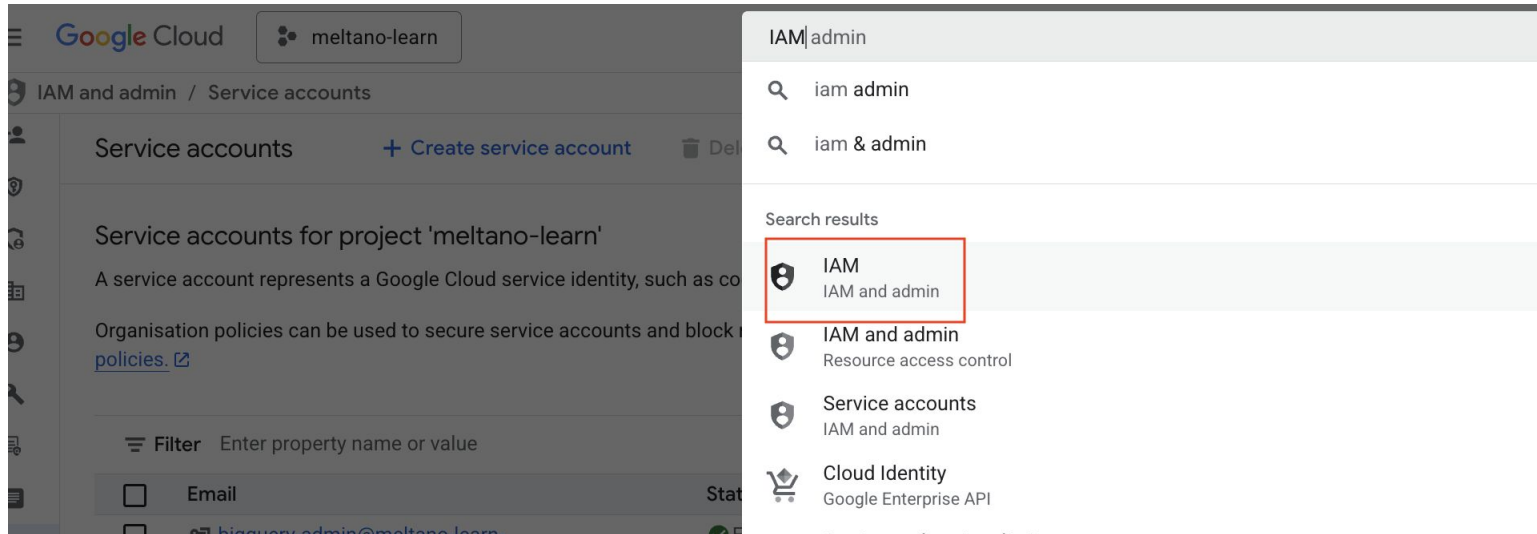
4. Create 'snapshots' folder in BQ

- 'snapshots' folder created in your BigQuery:



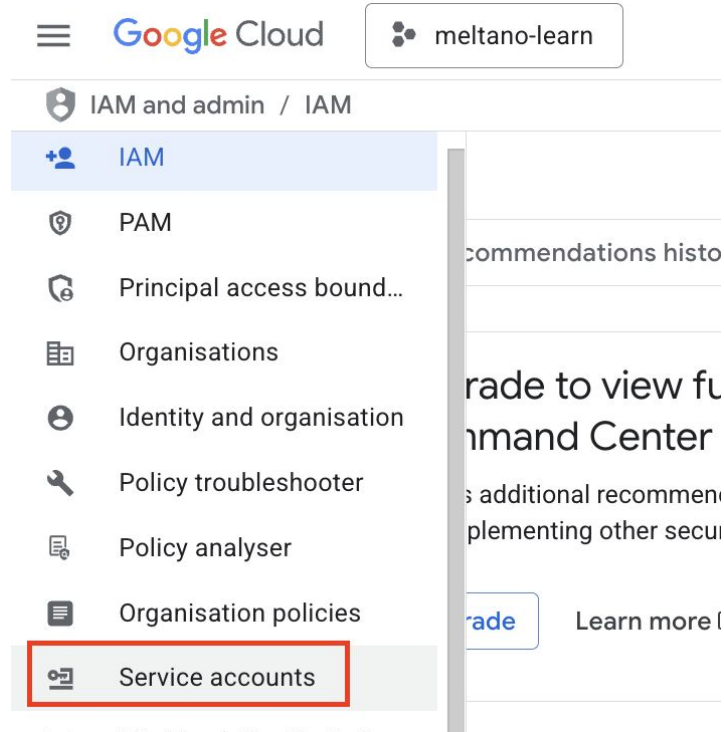
5. Setting up a service account

- In your Google Cloud project, search for 'IAM' and click:



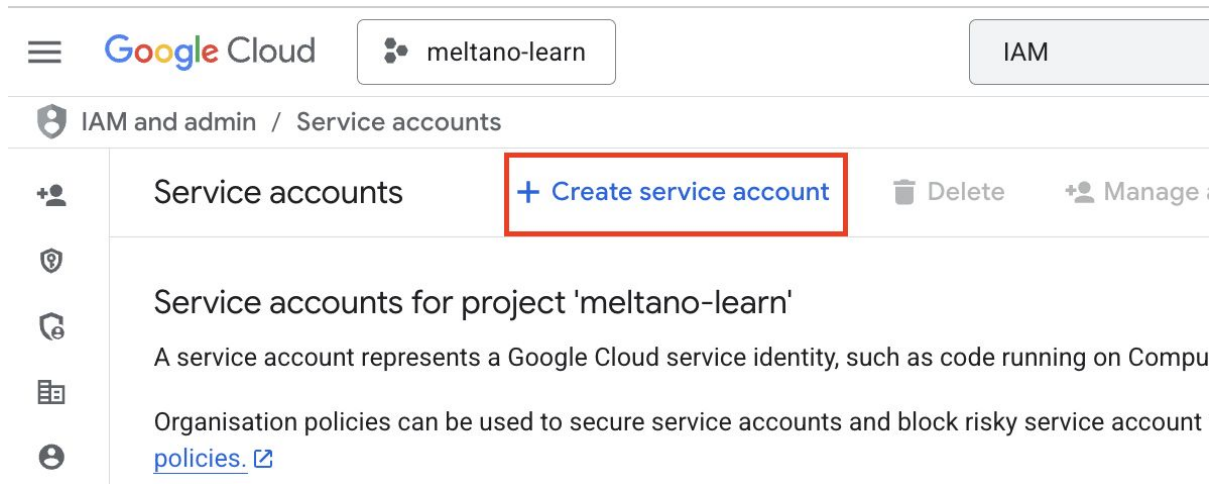
5. Setting up a service account

- In IAM, click on 'Service accounts':



5. Setting up a service account

- In IAM, click 'Create service account':



5. Setting up a service account

- Input as shown and click 'Create and continue':

Google Cloud meltano-learn

IAM and admin / Service accounts / Create service account

Create service account

1 Create service account

Service account name
bigquery-admin

Display name for this service account

Service account ID *
bigquery-admin-717

Email address: bigquery-admin-717@meltano-learn-453807.iam.gserviceaccount.com

Service account description

Describe what this service account will do

Create and continue

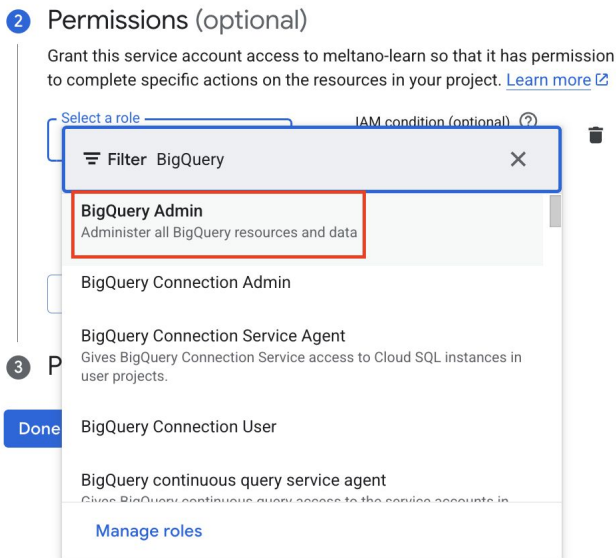
2 Permissions (optional)

3 Principals with access (optional)

Done Cancel

5. Setting up a service account

- Under Permissions, search for 'BigQuery Admin' and click Continue:



5. Setting up a service account

- Ignore Principals with access and click 'Done':

The screenshot shows the Google Cloud IAM and admin console. The breadcrumb trail is "IAM and admin / Service accounts / Create service account". The left sidebar shows the "IAM and admin" menu item selected. The main content area displays the "Create service account" wizard with three steps: "Create service account" (checked), "Permissions (optional)" (checked), and "Principals with access (optional)" (active). The "Principals with access (optional)" step includes a description: "Grant access to users or groups that need to perform actions as this service account. [Learn more](#)". Below this, there are two input fields for roles: "Service account users role" and "Service account admins role". The "Done" button is highlighted with a red box.

Google Cloud meltano-learn IAM

IAM and admin / Service accounts / Create service account

Create service account

✓ Create service account

✓ Permissions (optional)

3 Principals with access (optional)

Grant access to users or groups that need to perform actions as this service account. [Learn more](#)

Service account users role ?

Grant users the permissions to deploy jobs and VMs with this service account


Service account admins role ?

Grant users the permission to administer this service account

Done Cancel

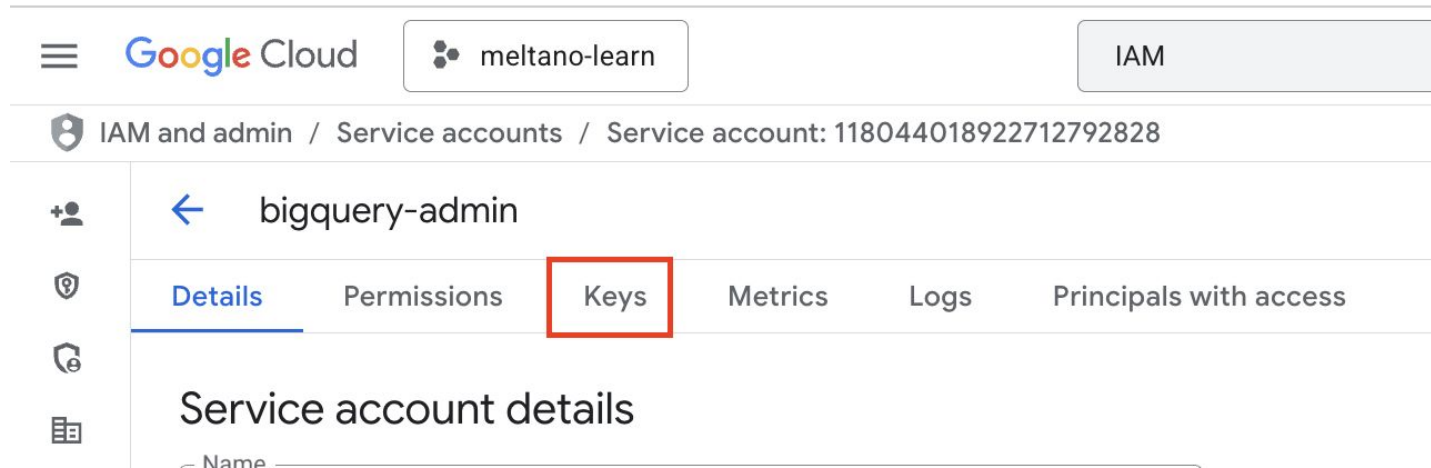
5. Setting up a service account

- Click into the service account you just created:

<input type="checkbox"/>	 bigquery-admin-717@meltano-learn-453807.iam.gserviceaccount.com	 Enabled	bigquery-admin
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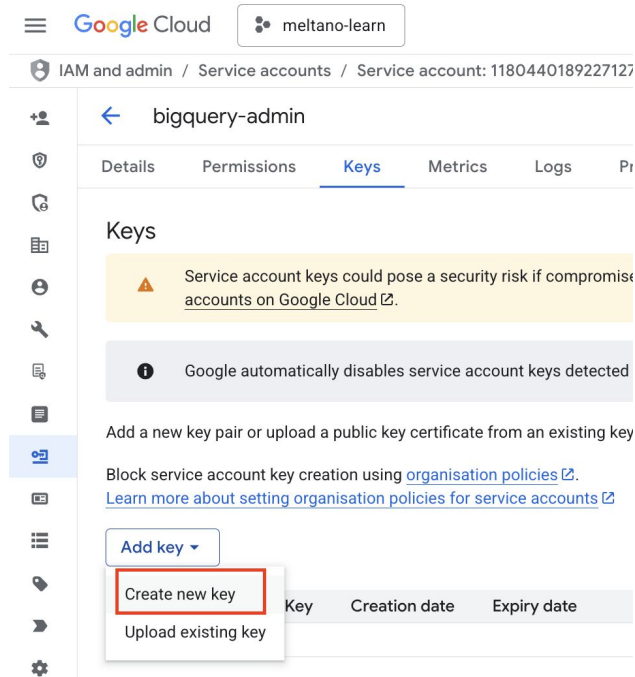
5. Setting up a service account

- Click 'Keys':



5. Setting up a service account

- Click 'Create new key':



5. Setting up a service account

- Select 'JSON' and click 'Create' - a JSON file will be downloaded into your laptop - put it into your meltano project folder

Create private key for 'bigquery-admin'

Downloads a file that contains the private key. Store the file securely because this key cannot be recovered if lost.

Key type

☒ JSON
Recommended

☐ P12
For backward compatibility with code using the P12 format

Cancel

Create