

How to Create a Table in Google Cloud

BigQuery



from a local CSV file

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Introduction

In this document I will explain **how to create a Table** in a Dataset in Google Cloud BigQuery, using a CSV File on my computer.

This document accompanies the text "**Kaye is Learning SQL**".

I assume that, you already have a free **GCP** (Google Cloud Platform) account.

If you don't please open an account before you start working on this document.

If you accessed this document from a GitHub Repository, you will also find another document in the same repository, on "how to open a free GCP account".



I learned about **Google Cloud Platform** and **Google BigQuery** in a Bootcamp by **Istanbul Data Science Academy**.

<https://istdatascience.com/>



Thank you very much **Google** and **Istanbul Data Science Academy**!

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Document Completion Date September the 24th, 2024

Now, let's get going.



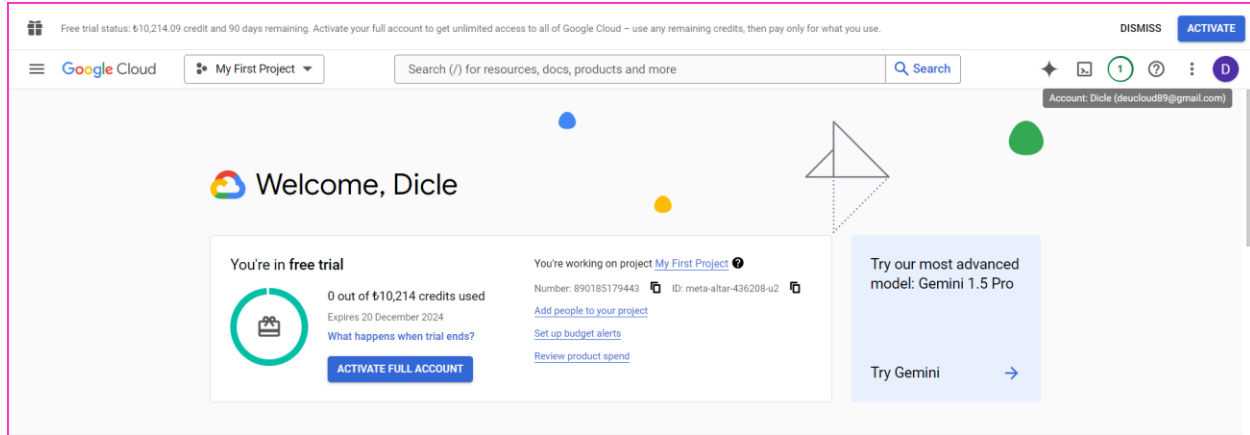
Step 1. Google Cloud Console

I go to Google Cloud Console

My Google Cloud Console is at the address below.

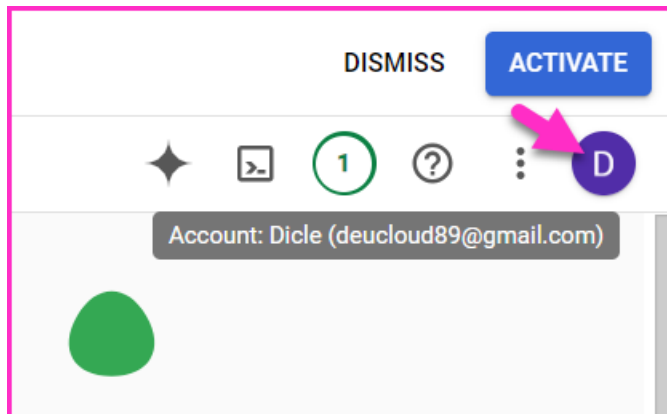
<https://console.cloud.google.com/>

I use a Chrome browser.



I make sure I am in the free Google Account

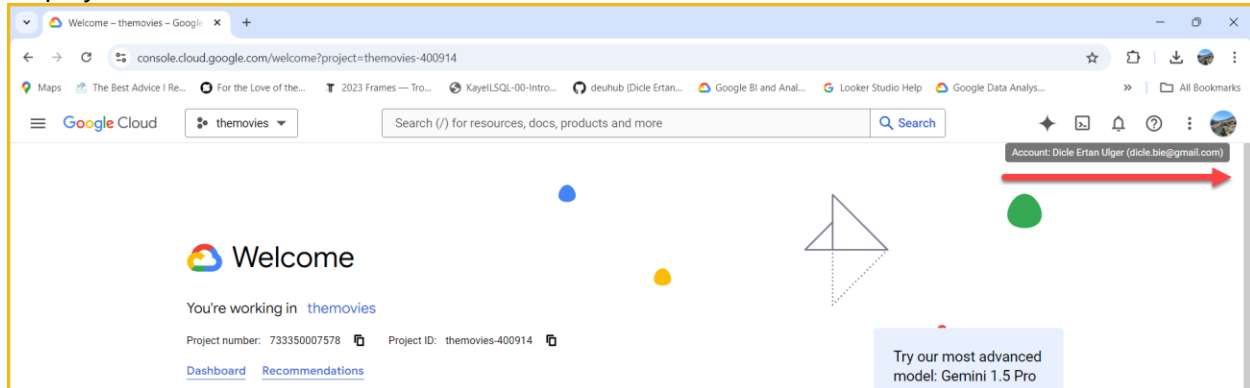
The **Account Name** which displays on the top right of the screen **must be** the same as the **three-months-free GCP account**.



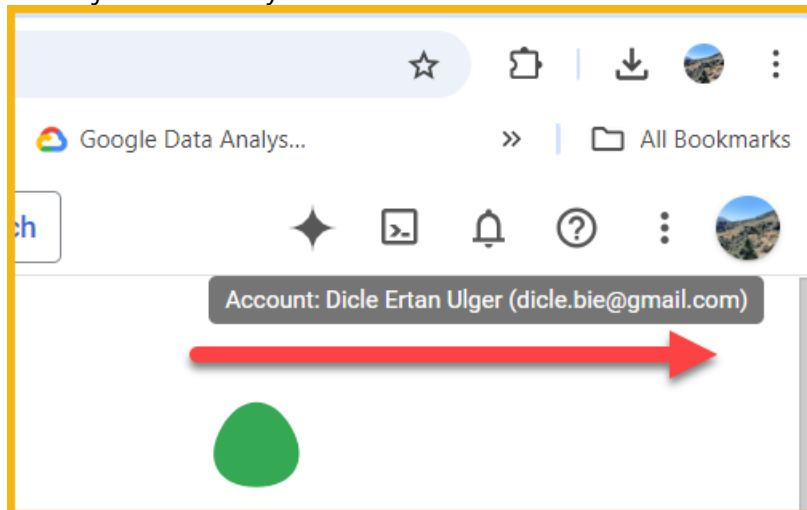
If not, I click on my Profile Picture, and select the correct one.

Create a Table in BigQuery from a CSV File

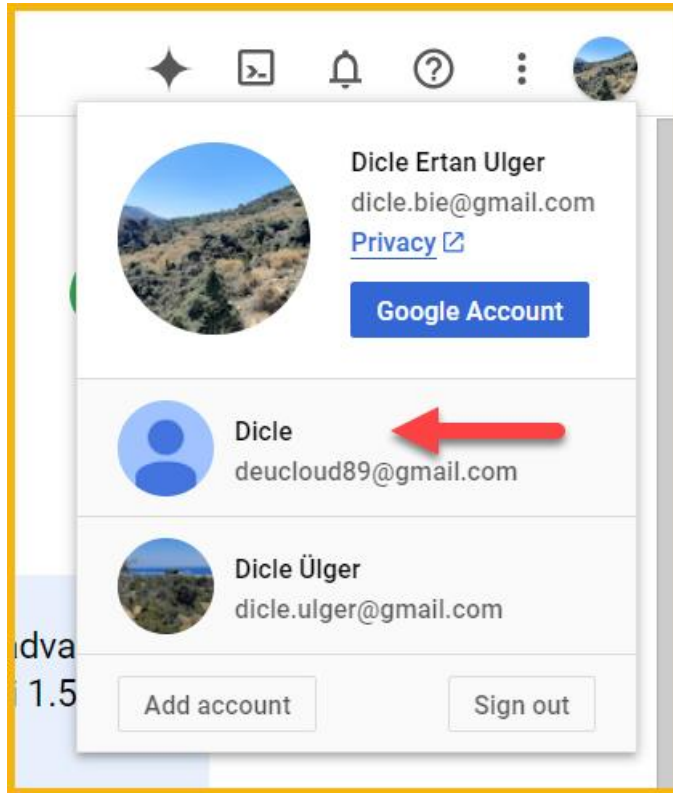
For example, when I first typed in <https://console.cloud.google.com/> the console below was displayed.



This is **NOT** the **three-months-free** GCP account I opened.
This is just one of my other accounts.



Create a Table in BigQuery from a CSV File

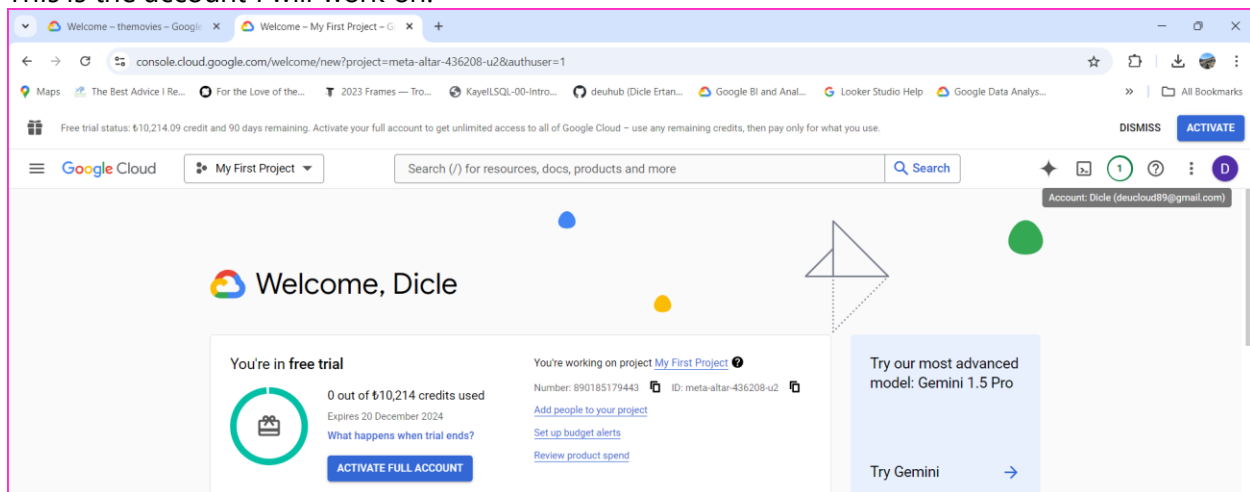


To change the account, I click on my Profile Picture.

And then, click on the correct account.

And here I am.

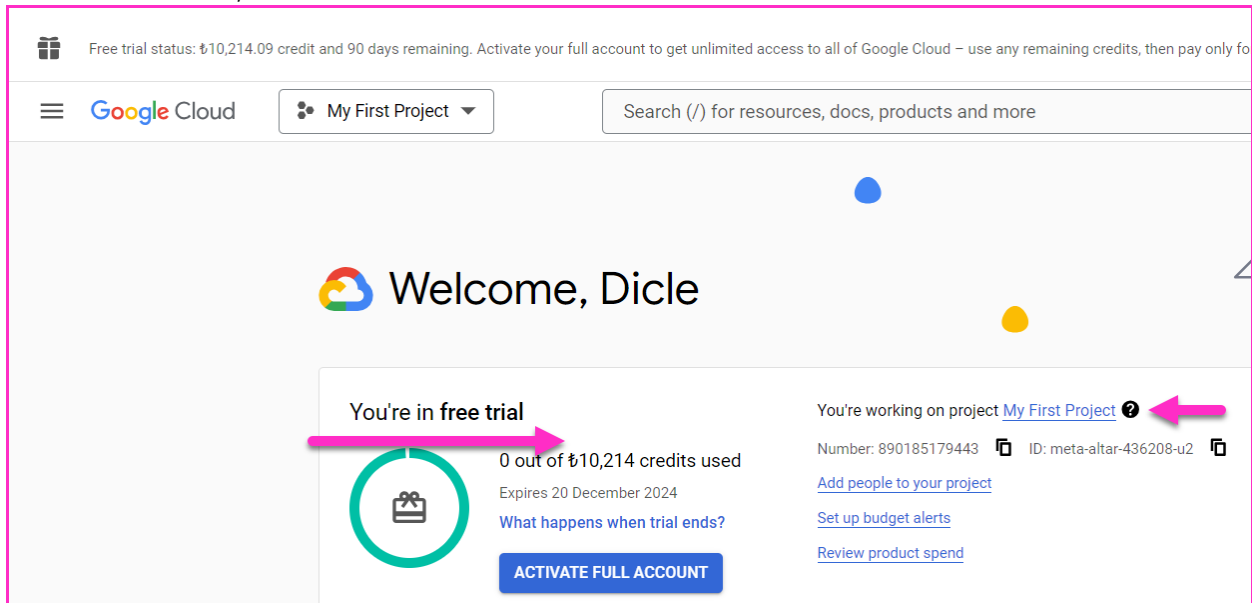
This is the account I will work on.



I select the project I will work on

I can see **My First Project** Google assigned me.

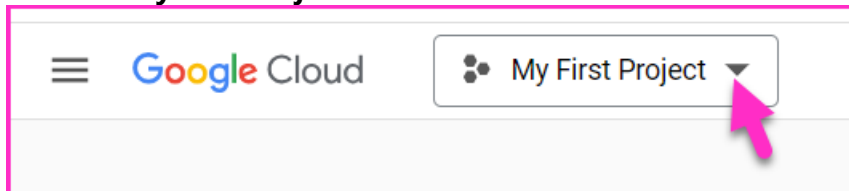
I can also see that, I am in **free trial**.



However, I might have some other projects that I have been working on.

Here is how I find my projects.

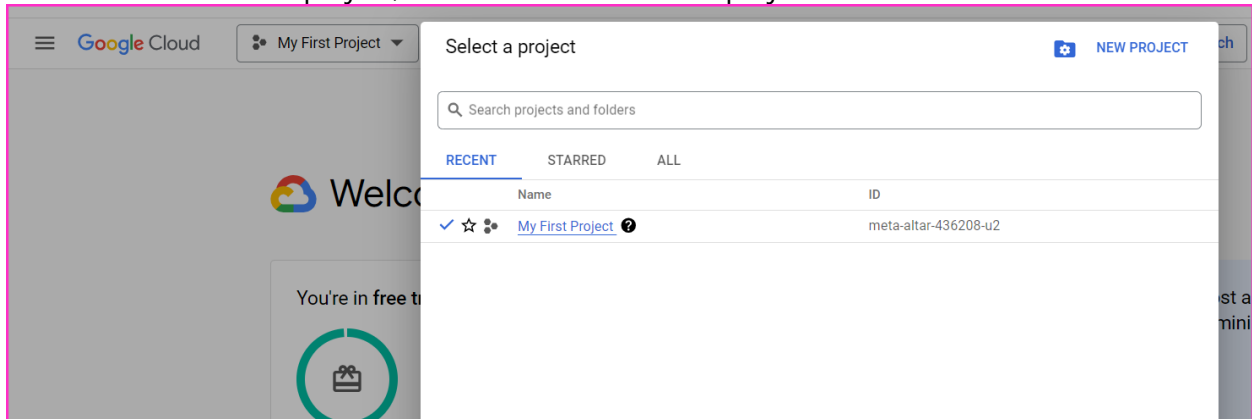
I click on **My First Project**.



List of my projects are displayed.

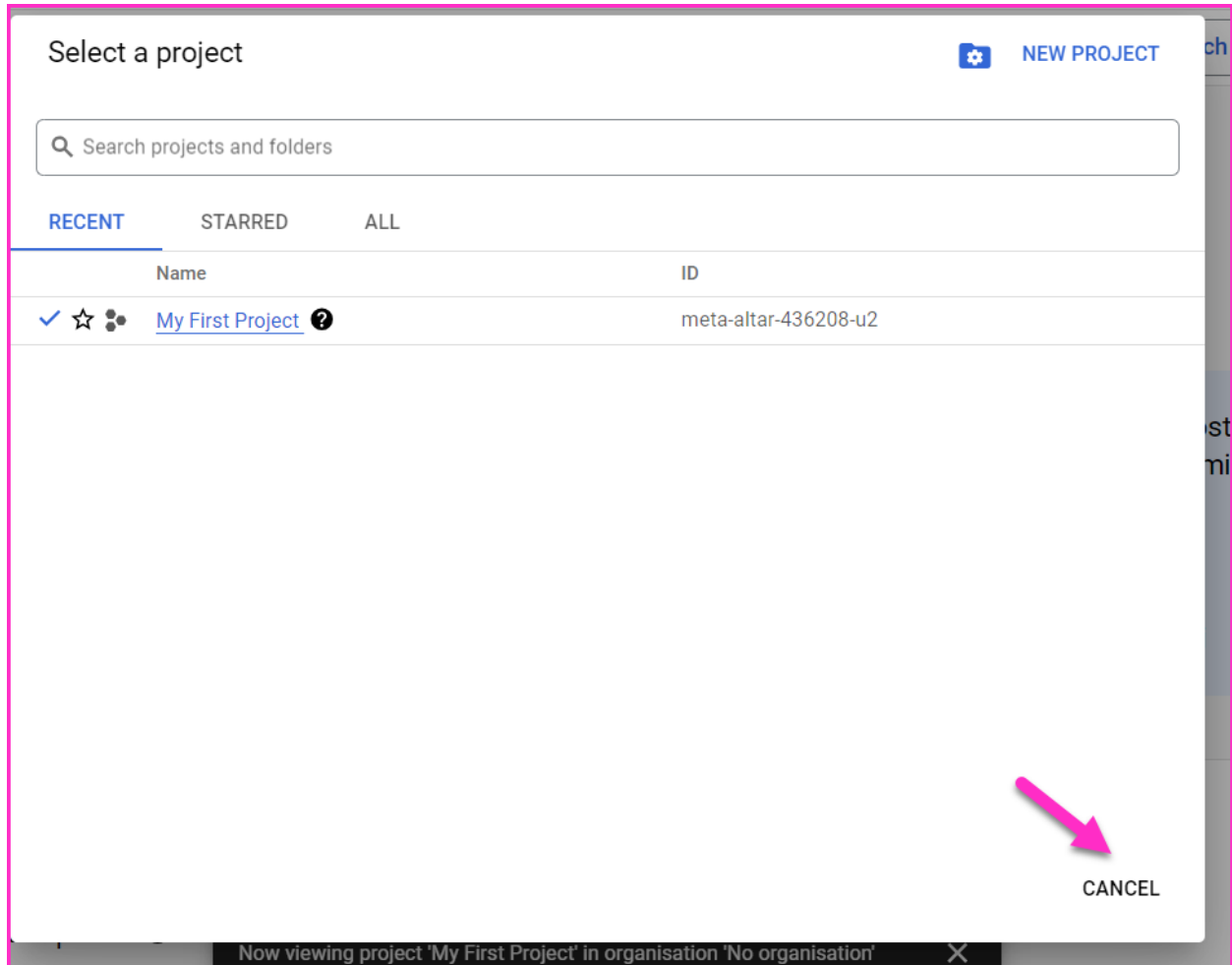
I have currently no other projects.

If I had more than one project, this is where I select the project I will work on.



Create a Table in BigQuery from a CSV File

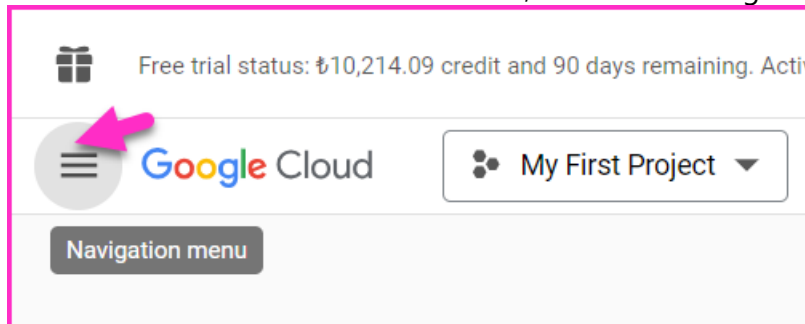
I click on **Cancel** to leave this window.



Step 2. Navigation Menu

The Navigation Menu is on the top left of the screen.

It is the icon with **three horizontal bars**, next to the Google Cloud logo.



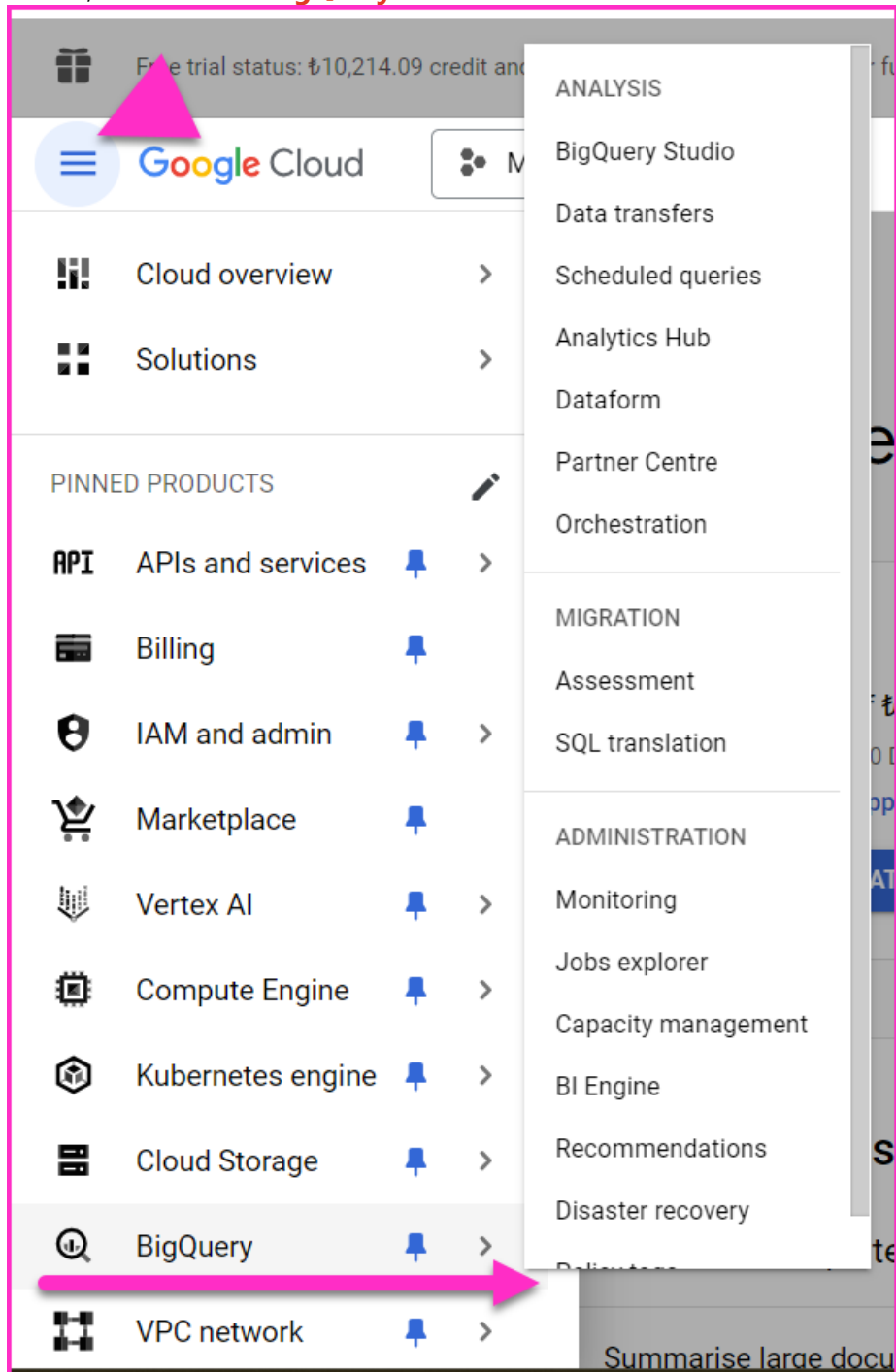
Create a Table in BigQuery from a CSV File

I click on the Navigation Menu.

A list of Google Products are displayed.

I will work on **BigQuery**.

Hence, I click on the **BigQuery**.

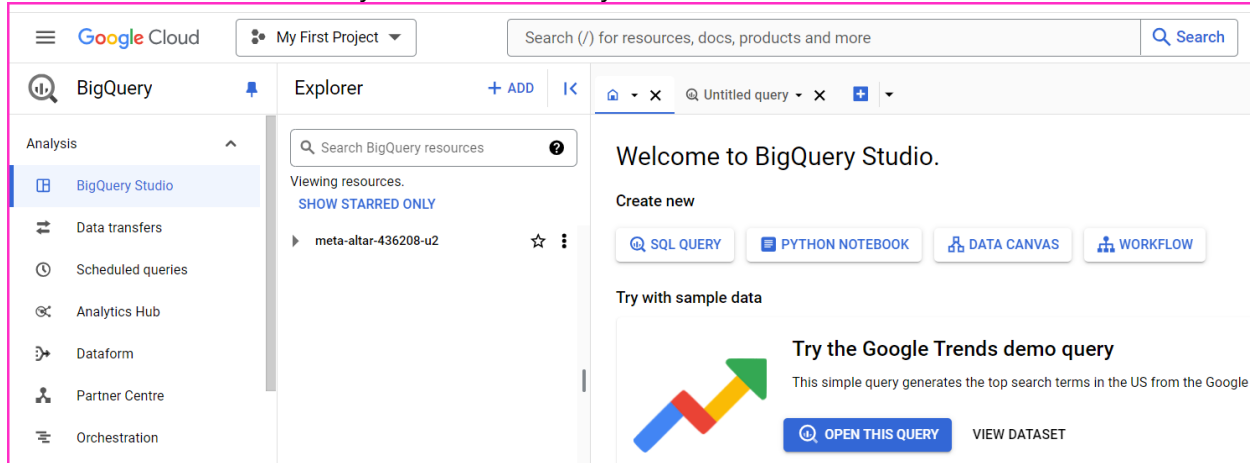


Step 3. I am in BigQuery

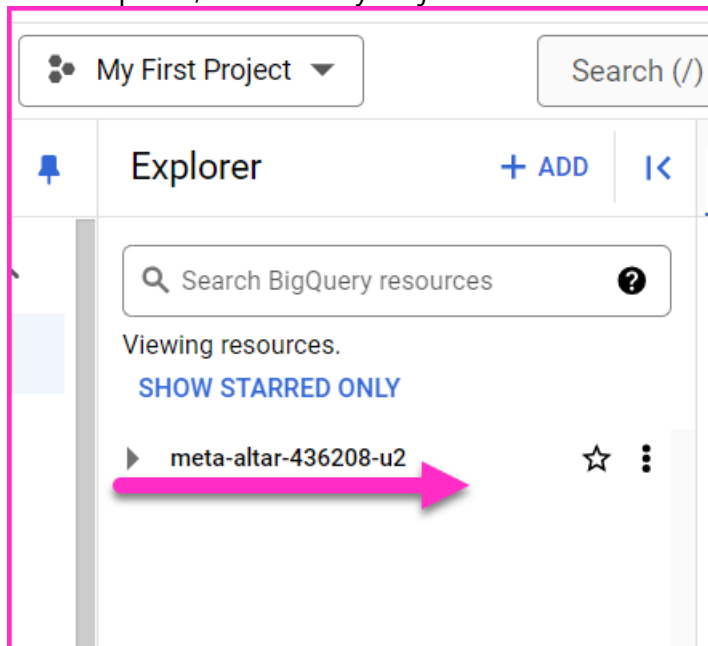
Here I am in BigQuery.

BigQuery is the Data Warehouse of Google Cloud.

This is where I will create my tables and run my SQL Queries.

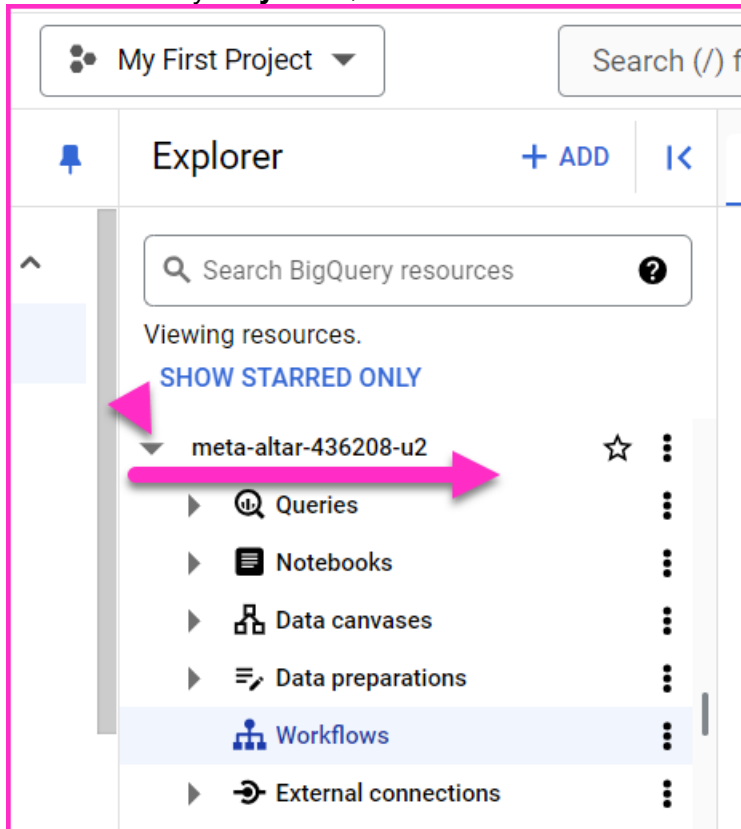


In the Explorer, I can see my Project ID.



Create a Table in BigQuery from a CSV File

Underneath my **Project ID**, there are some more items.



I will now create a Dataset under my Project ID.

Step 4. Create a Dataset

A table is created under a Dataset.

Therefore, I will initially create a Dataset.

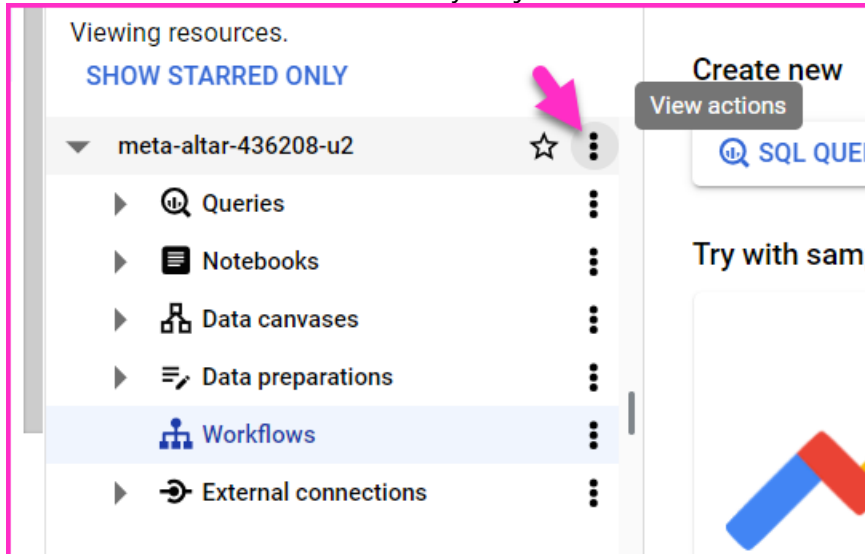
I will name my Dataset **kayeilsql**.

This is because, the SQL queries we will use refer to the tables as **dataset_name.table_name**.

And all queries use **kayeilsql** as the dataset name.

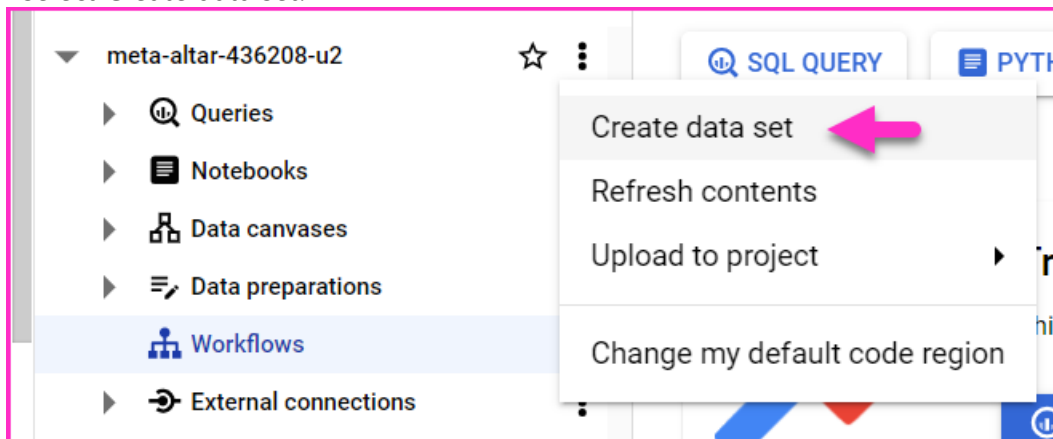
The three vertical dots next to the Project ID is the **View Actions** button.

I click on the **three dots** next to my Project ID.



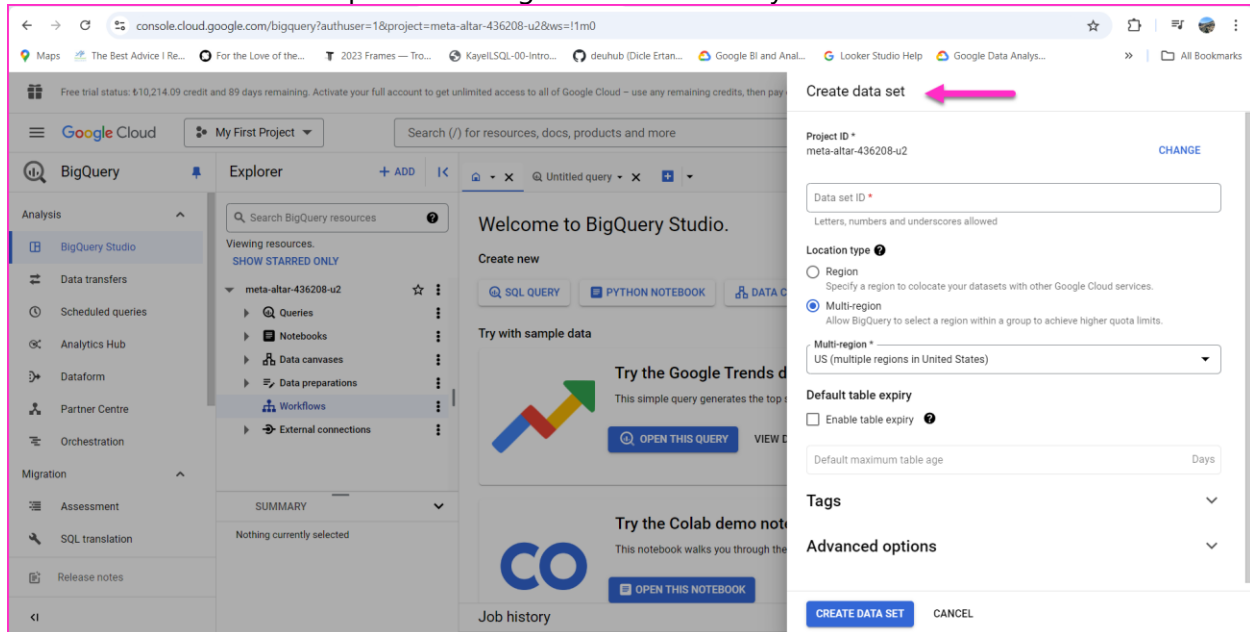
Another **menu panel** is displayed.

I select Create data set.



Create a Table in BigQuery from a CSV File

Create data set window opens at the right-hand-side of my screen.



Create a Table in BigQuery from a CSV File

This is what the default **Create data set** window looks like.

Project ID is assigned automatically by BigQuery, because I am working under this project.

I will fill in,

One. Data set ID

Two. Region / Location type

Create data set

Project ID *
meta-altar-436208-u2 [CHANGE](#)

Data set ID * **1**
Letters, numbers and underscores allowed

Location type **2**

☐ Region
Specify a region to colocate your datasets with other Google Cloud services.

☒ Multi-region
Allow BigQuery to select a region within a group to achieve higher quota limits.

Multi-region *
US (multiple regions in United States) ▼

Default table expiry

☐ Enable table expiry **?**

Default maximum table age Days

Tags ▼

Advanced options ▼

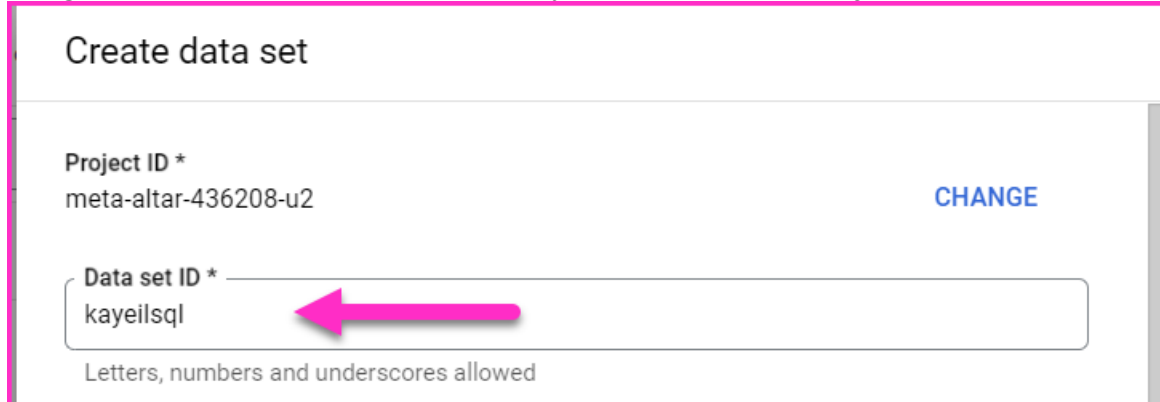
CREATE DATA SET CANCEL

Fill in the Data set ID

My Data set ID is **kayeilsql**.

I make sure it is **lowercase**.

Google SQL is **case-sensitive**, and in all my SQL queries I used **kayeilsql in lowercase**.



Create data set

Project ID *
meta-altar-436208-u2 [CHANGE](#)

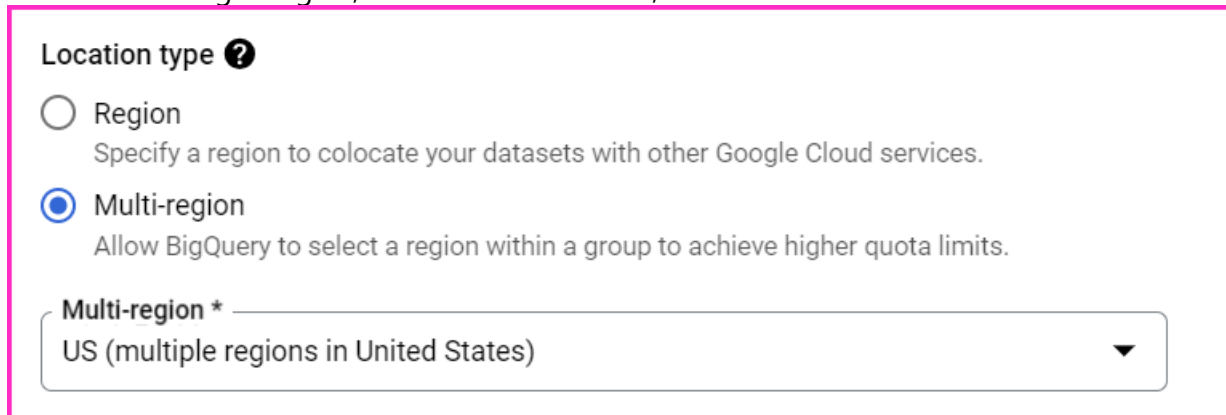
Data set ID *
kayeilsql

Letters, numbers and underscores allowed

Fill in the Region/Location type

Google chose a Multi-region by default.

I will select a single Region, and a low-carbon one, which costs less.



Location type ?

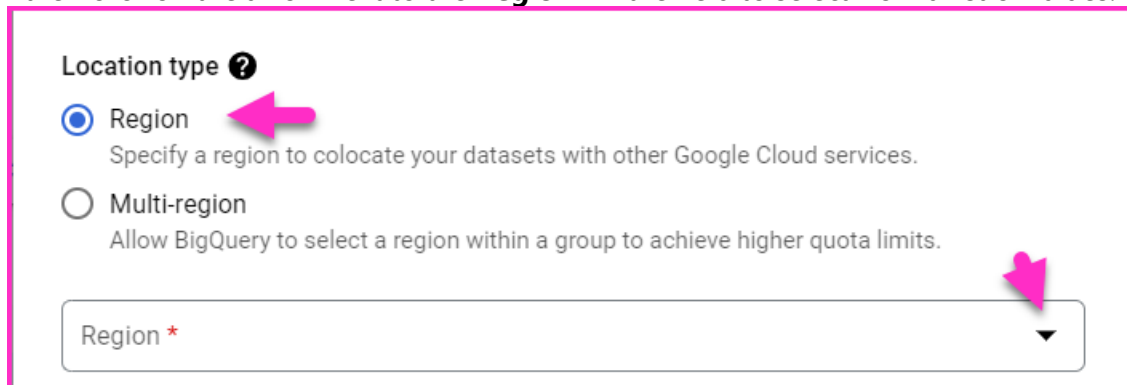
☐ Region
Specify a region to colocate your datasets with other Google Cloud services.

☒ Multi-region
Allow BigQuery to select a region within a group to achieve higher quota limits.

Multi-region *
US (multiple regions in United States) ▼

I click on the **Region radio-button**.

I then click on the arrow next to the **Region*** in the field to select from a list of values.



Location type ?

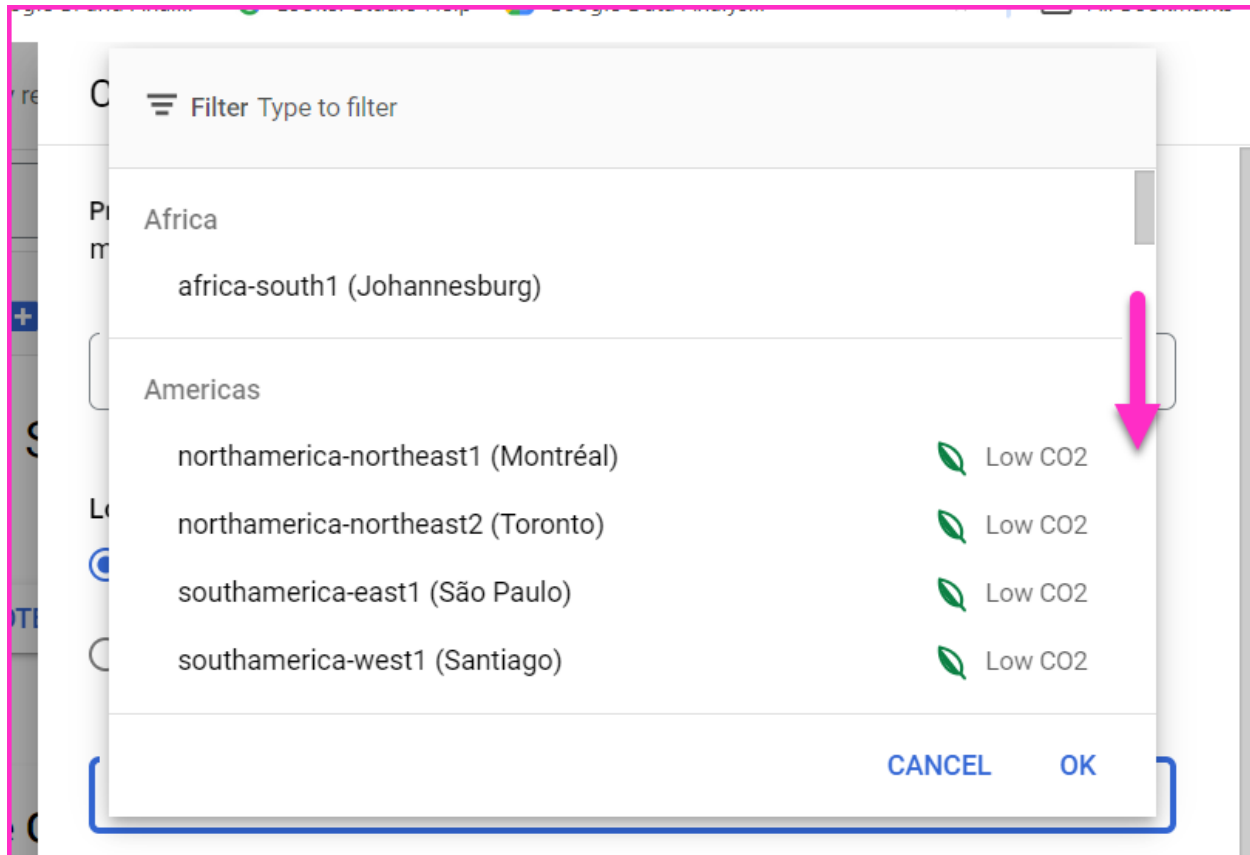
☒ Region
Specify a region to colocate your datasets with other Google Cloud services.

☐ Multi-region
Allow BigQuery to select a region within a group to achieve higher quota limits.

Region * ▼

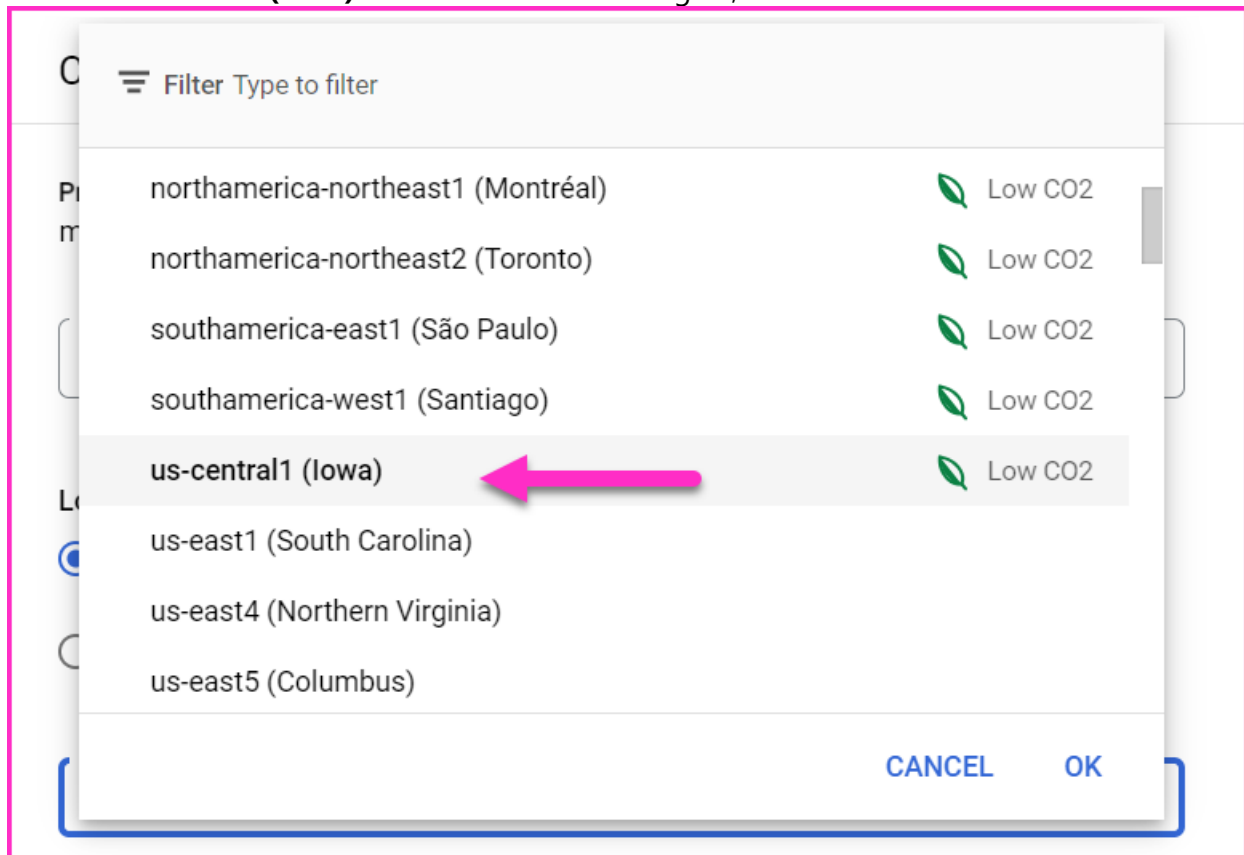
Create a Table in BigQuery from a CSV File

Google offers me many regions to choose from.
I scroll down.

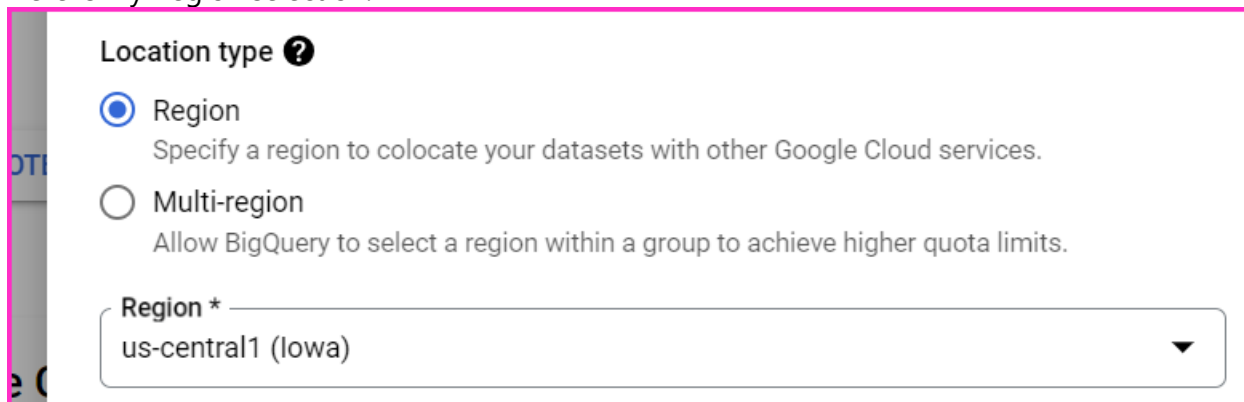


Create a Table in BigQuery from a CSV File

I select **us-central1 (Iowa)** which is a low carbon region, and costs less.



Here is my Region selection.



You can select any other region you prefer.

However, please keep in mind that, if you are working on a Google Cloud project, and you are using several products, all of them must be in the same Region.

CREATE DATA SET

I now click on the **CREATE DATA SET** button and wait for my Data set to be created.

Create data set

Project ID *
meta-altar-436208-u2 [CHANGE](#)

Data set ID *
kayeilsql
Letters, numbers and underscores allowed

Location type ?
☒ Region
Specify a region to colocate your datasets with other Google Cloud services.
☐ Multi-region
Allow BigQuery to select a region within a group to achieve higher quota limits.

Region *
us-central1 (Iowa) ▼

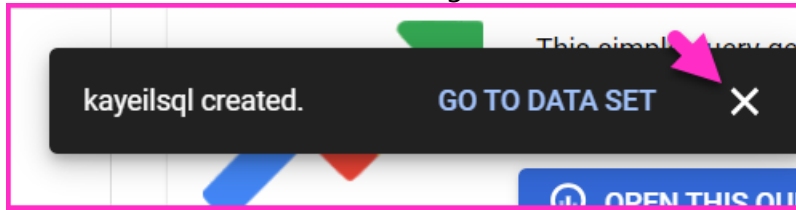
Default table expiry
☐ Enable table expiry ?
Default maximum table age Days

Tags ▼

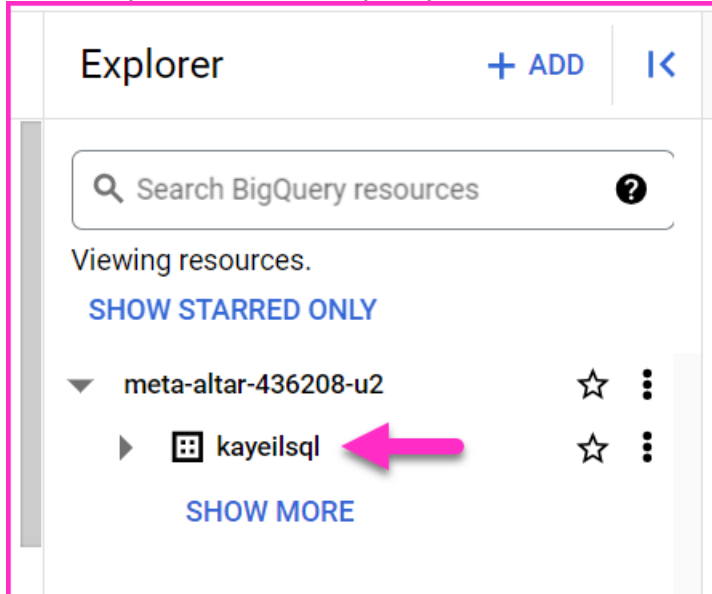
CREATE DATA SET CANCEL

Create a Table in BigQuery from a CSV File

Google gives me the message that my Data set is created.
I click on the X to close this message.

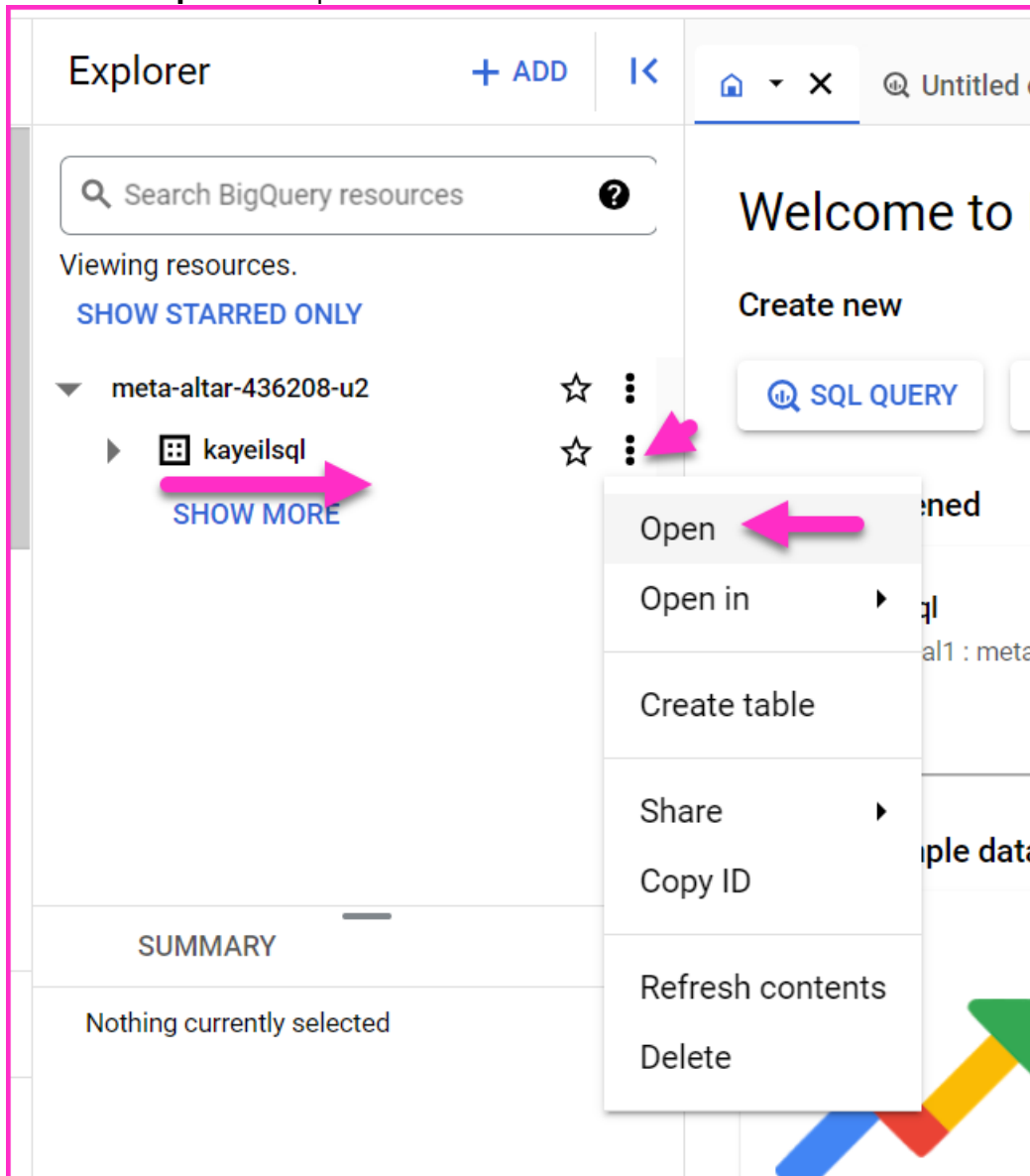


Here is my dataset under my project in the Explorer.



Create a Table in BigQuery from a CSV File

I click on the **three vertical dots** (View Actions) next to my dataset, then select **Open** in the panel menu.



Create a Table in BigQuery from a CSV File

Here is my dataset info displayed.

Untitled query

kayeilsql

+

kayeilsql

+ CREATE TABLE

Data set info

Data set ID	meta-altar-436208-u2.kayeilsql
Created	23 Sept 2024, 06:49:30 UTC+3
Default table expiry	Never
Last modified	23 Sept 2024, 06:49:30 UTC+3
Data location	us-central1
Description	
Default collation	
Default rounding mode	ROUNDING_MODE_UNSPECIFIED
Case insensitive	false
Labels	
Tags	

Now, I can create my tables under my dataset.



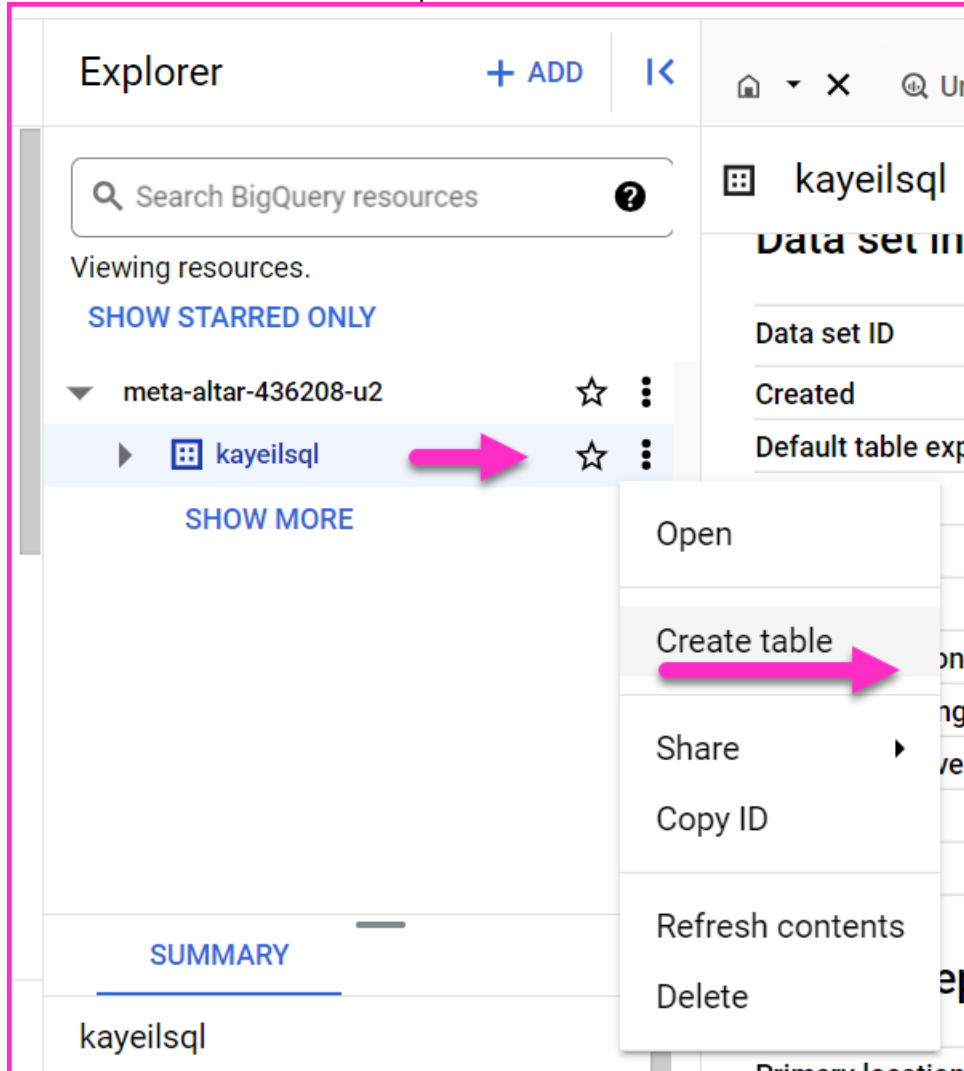
Step 5. Create a Table

Go to Create Table window

I can go to **Create Table window** in two ways.

First Way

One way is, I can click on the **three vertical dots** (View Actions) next to my dataset, then select **Create Table** in the panel menu.



Create a Table in BigQuery from a CSV File

Second Way

The other way is, if I have my **Data set info** screen open, I can click on the **CREATE TABLE** button.

The screenshot shows the Google Cloud BigQuery console interface. On the left, the 'Explorer' pane shows a project named 'meta-altar-436208-u2' with a dataset named 'kayeilsql'. The main panel displays the 'Data set info' for 'kayeilsql'. The 'CREATE TABLE' button is highlighted with a pink arrow in the top right corner of the dataset info panel.

Data set info	
Data set ID	meta-altar-436208-u2.kayeilsql
Created	23 Sept 2024, 06:49:30 UTC+3
Default table expiry	Never
Last modified	23 Sept 2024, 06:49:30 UTC+3
Data location	us-central1
Description	
Default collation	
Default rounding mode	ROUNDING_MODE_UNSPECIFIED
Case insensitive	false
Labels	
Tags	

Either way, takes me to the Create Table window, seen below.

The 'Create table' dialog box is shown. The 'Source' is set to 'Empty table'. The 'Destination' fields are filled with 'Project * meta-altar-436208-u2', 'Data set * kayeilsql', and 'Table *'. The 'Table type' is set to 'Native table'. The 'Schema' section has 'Edit as text' disabled. The 'CREATE TABLE' button is highlighted.

Source

Create table from
Empty table

Destination

Project *
meta-altar-436208-u2

Data set *
kayeilsql

Table *
Maximum name size is 1,024 UTF-8 bytes. Unicode letters, marks, numbers, connectors, dashes and spaces are allowed.

Table type
Native table

Schema

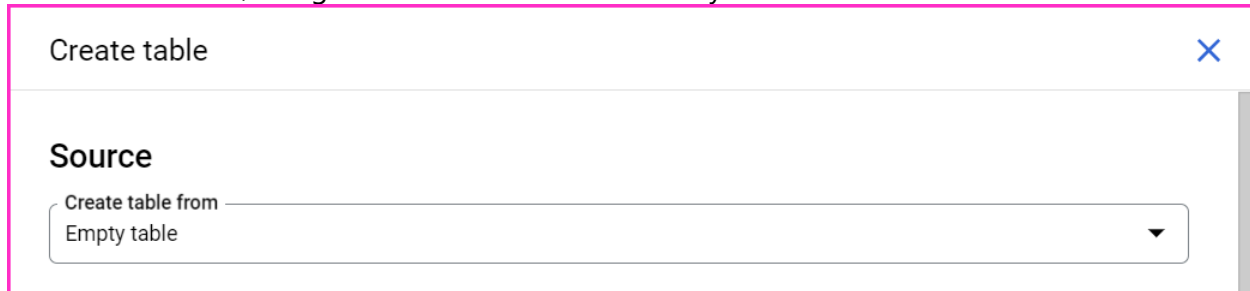
Edit as text

CREATE TABLE CANCEL

I will now fill in the required fields in the Create Table window.

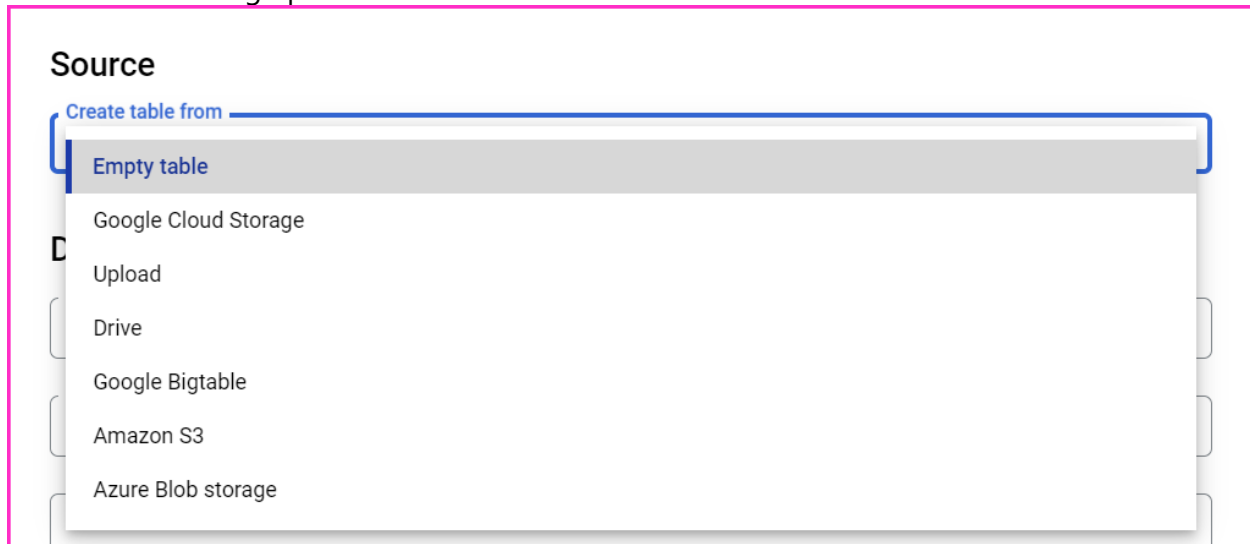
One. Source / Create Table from

In the Source field, Google asks me where to Create my table from.



The screenshot shows a 'Create table' dialog box. Under the 'Source' heading, there is a label 'Create table from' followed by a dropdown menu. The dropdown menu is open, showing 'Empty table' as the selected option. A blue 'X' icon is in the top right corner of the dialog box.

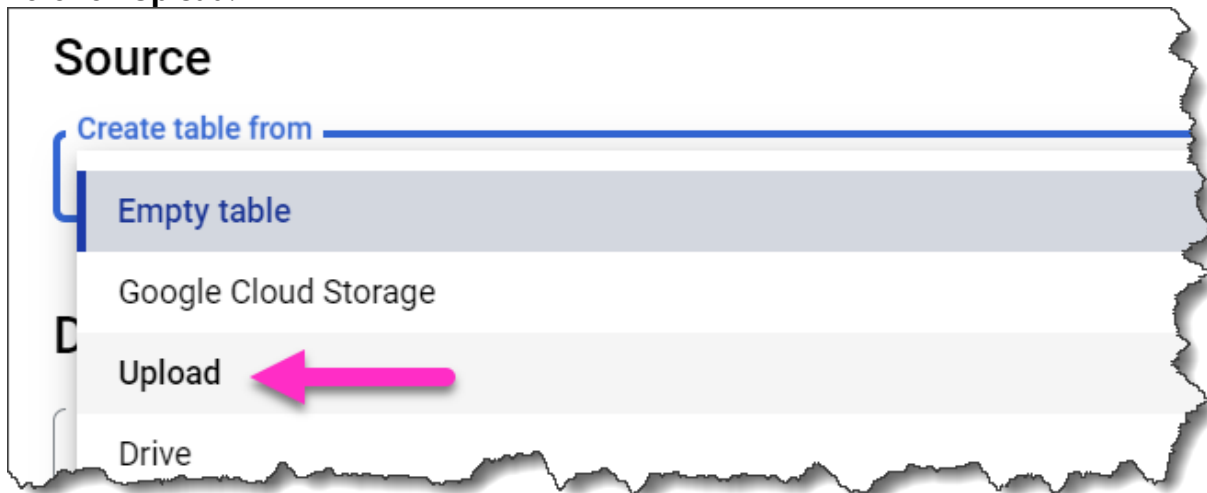
I have the following options.



The screenshot shows the 'Source' dropdown menu open. The options listed are: 'Empty table' (highlighted), 'Google Cloud Storage', 'Upload', 'Drive', 'Google Bigtable', 'Amazon S3', and 'Azure Blob storage'. A blue line is visible above the dropdown menu.

I know that I will create my table by uploading data from my own computer.

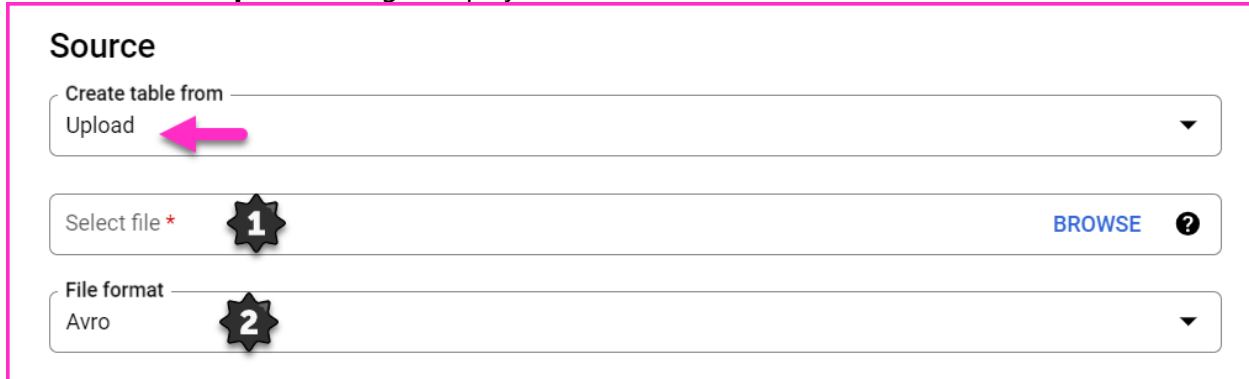
I click on **Upload**.



The screenshot shows the 'Source' dropdown menu open. The options listed are: 'Empty table', 'Google Cloud Storage', 'Upload', and 'Drive'. A pink arrow points to the 'Upload' option.

Create a Table in BigQuery from a CSV File

When I click on **Upload**, Google displays **two new fields** which were not there before.



Source

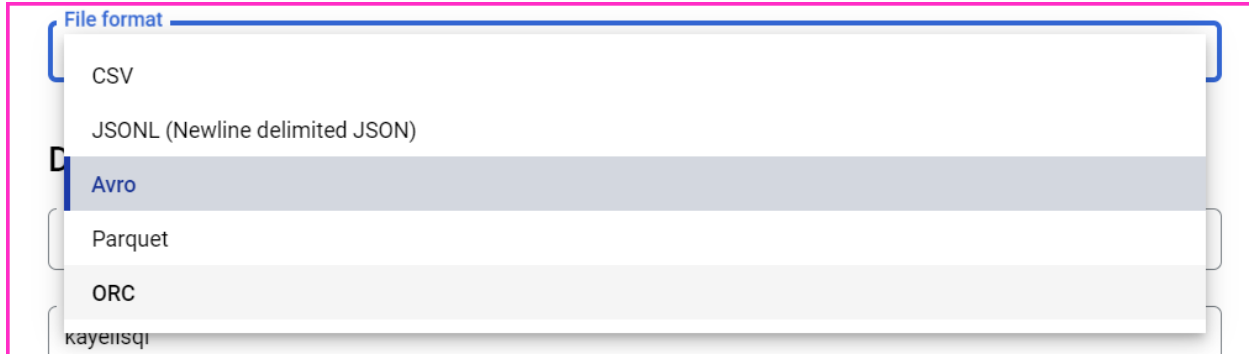
Create table from
Upload

Select file * **1** [BROWSE](#) ?

File format
Avro **2**

The first field is to Select the file I want to upload.
Google gives me a **BROWSE button** for this purpose.

The second field is to choose from a list of **File formats**.



File format

- CSV
- JSONL (Newline delimited JSON)
- Avro**
- Parquet
- ORC
- kayensql

Create a Table in BigQuery from a CSV File

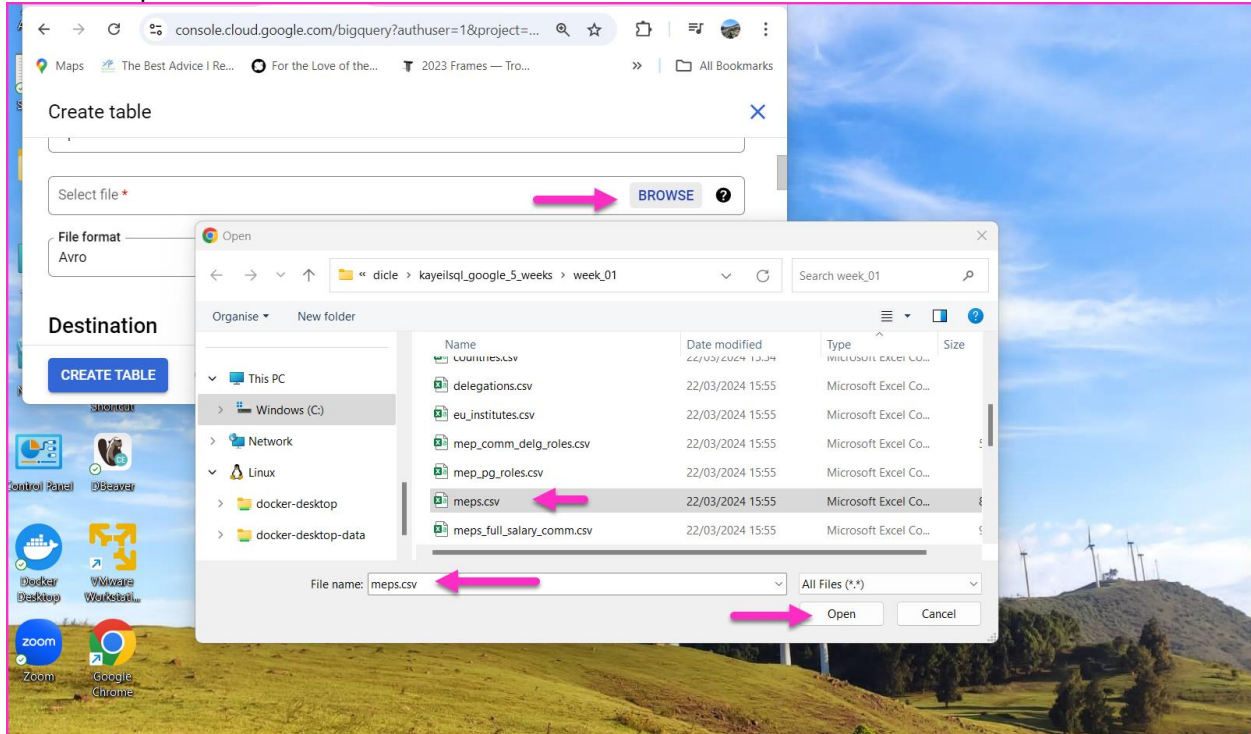
Select File

I click on the BROWSE button.

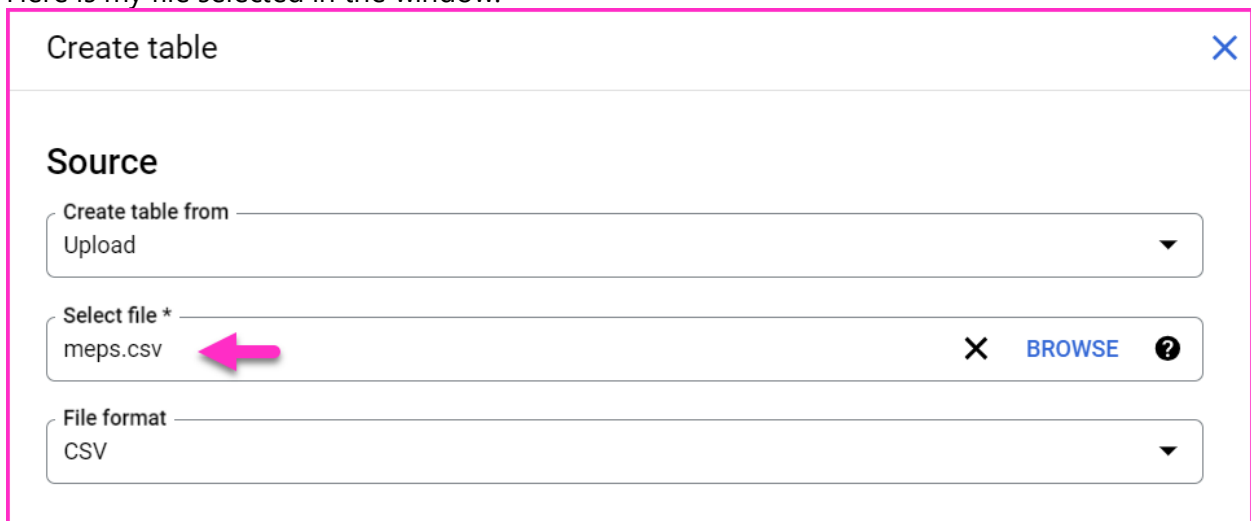
Find the file I want to upload on my laptop.

Click on the file.

Click on Open.



Here is my file selected in the window.



File Format

The **File format** is filled in automatically as CSV.
This is because my file type is csv, and Google can detect it.



Create table

Source

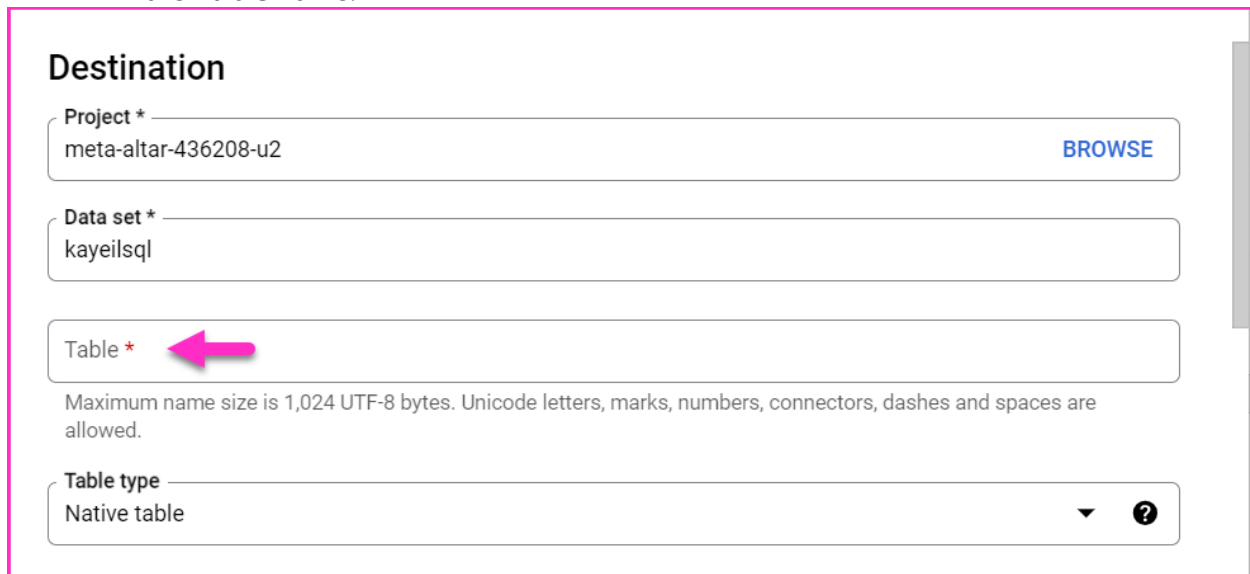
Create table from
Upload

Select file *
meps.csv X BROWSE ?

File format
CSV

Two. Destination

In the **Destination** section, **Project** and **Data set** fields are filled in automatically.
I will fill in the **Table** name.



Destination

Project *
meta-altar-436208-u2 BROWSE

Data set *
kayeilsql

Table *

Maximum name size is 1,024 UTF-8 bytes. Unicode letters, marks, numbers, connectors, dashes and spaces are allowed.

Table type
Native table

Create a Table in BigQuery from a CSV File

I name my table **meps**.

It is the same as the name of the file.

Filename is meps.csv.

Table name is meps.

I make sure it is **lowercase**.

Google SQL is case-sensitive, and in all my SQL queries I used lowercase table names.

Destination

Project *

meta-altar-436208-u2

Data set *

kayeilsql

Table *

meps

Table type

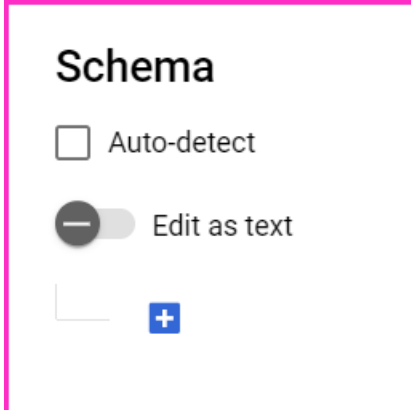
Native table

Maximum name size is 1,024 UTF-8 bytes. Unicode

I leave the **Table type** as is.

Three. Schema


Schema can be **Auto-detected**, or it can be entered manually.



Schema

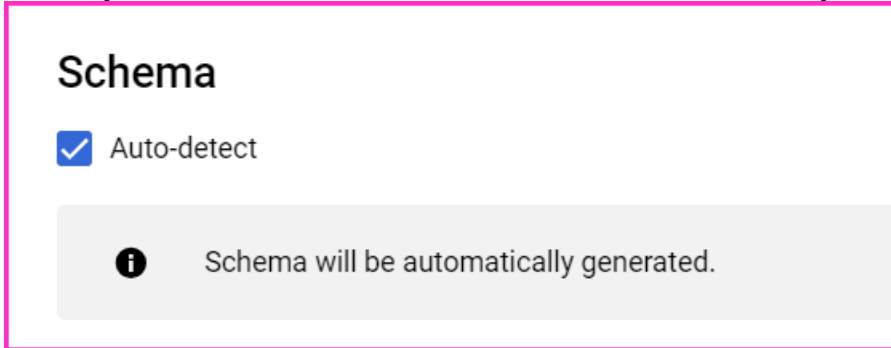
☐ Auto-detect

☒ Edit as text




I tick on **Auto-detect**.

The **meps** table will be created in the same structure as the **meps.csv** file.



Schema

☒ Auto-detect

 Schema will be automatically generated.

CREATE TABLE Button

I leave everything else as is.

I click on the **CREATE TABLE** Button, at the bottom left of the screen.

Schema

☒ Auto-detect

i Schema will be automatically generated.

Partition and cluster settings

Partitioning
No partitioning

Clustering order

Clustering order determines the sort order of the data. Clustering

Tags

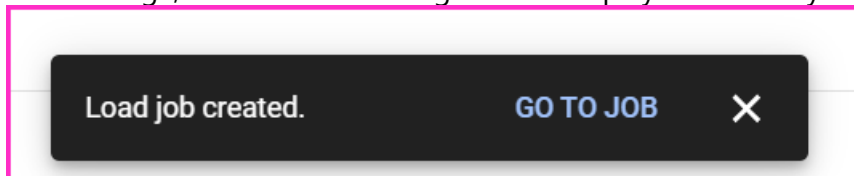
Tags help you manage and enforce policies on your resources. Tag and a set of tag values. [Learn more](#)

SELECT SCOPE

CREATE TABLE CANCEL

A little while after I click on the **CREATE TABLE** button, the following message which says **Load Job created**, is displayed.

I **wait for this message to disappear automatically**, because the Table will be created after this message, and another message will be displayed which says that **the table is created**.



My Table is Created

A message is displayed which says that **the table is created**, after the **Load Job created** message.

I can also see my table under my Dataset.

I close the message by clicking on the X.

The screenshot shows the Google Cloud BigQuery console interface. At the top, there's a search bar and a project selector set to 'My First Project'. The main area is divided into two panes. The left pane, titled 'Explorer', shows a tree view of resources. Under the 'meta-altar-436208-u2' dataset, the 'kayeilsql' table is highlighted, and a pink arrow points to the 'meps' table below it. The right pane, titled 'Data set info', displays details for the 'kayeilsql' dataset, including its ID, creation time, and location. A notification message at the bottom center states 'meps created.' with a 'GO TO TABLE' link and a close button (X). A pink arrow points to this close button.

Data set info	
Data set ID	meta-altar-436208-u2.kayeilsql
Created	23 Sept 2024, 06:49:30 UTC+3
Default table expiry	Never
Last modified	23 Sept 2024, 06:49:30 UTC+3
Data location	us-central1
Description	
Default collation	
Default rounding mode	ROUNDING_MODE_UNSPECIFIED
Case insensitive	false
Labels	
Tags	

Create a Table in BigQuery from a CSV File

I will now examine my table.

The screenshot shows the Google Cloud BigQuery Explorer interface. At the top, there's a header with the Google Cloud logo, a project selector set to 'My First Project', and a search bar. Below the header, the left sidebar contains a 'BigQuery' section with a search icon and a 'BigQuery Studio' link. The main area is titled 'Explorer' and features a search bar for BigQuery resources. It displays a list of resources under the project 'meta-altar-436208-u2', including 'kayeilsql' and 'meps'. The 'kayeilsql' resource is highlighted. There are also links for 'SHOW STARRED ONLY', 'SHOW MORE', and 'SHOW MORE'.

Google Cloud

My First Project

Search (/) for resource

BigQuery

Explorer

Analysis

BigQuery Studio

Data transfers

Scheduled queries

Analytics Hub

Dataform

Partner Centre

Orchestration

Search BigQuery resources

Viewing resources.

SHOW STARRED ONLY

meta-altar-436208-u2

kayeilsql

meps

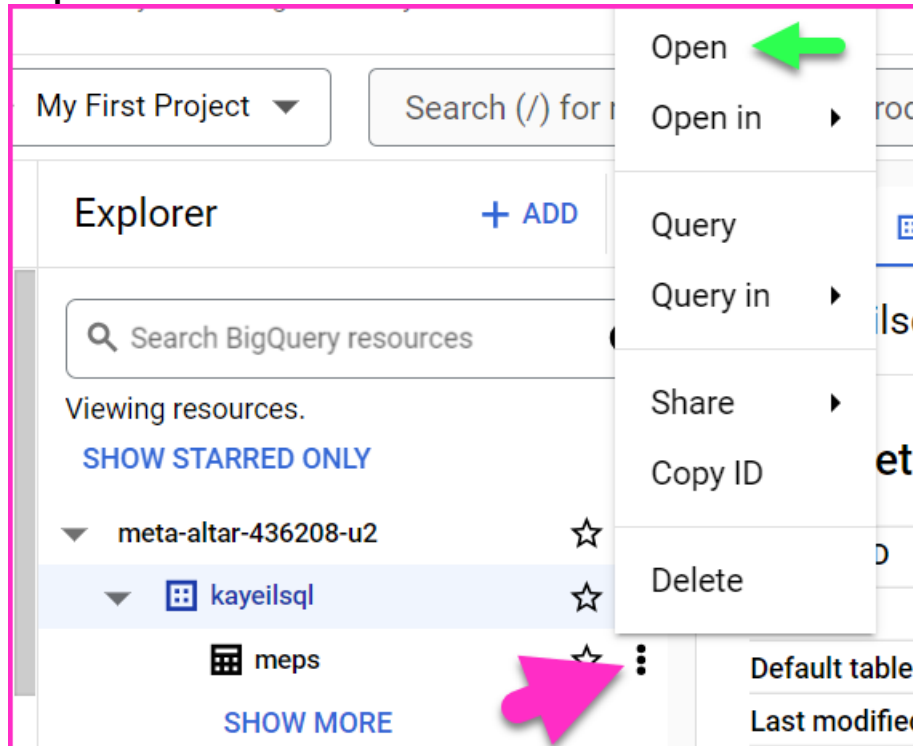
SHOW MORE

SHOW MORE

Step 6. Examine the Table

Just like in other objects, I click on the **three vertical dots (View Actions)** next to my table name.

I then click on **Open**.



And ... here comes **my beautiful table** in beautiful **Google Cloud BigQuery**.



SCHEMA Tab

In the Schema Tab, I can view the Fields of my Table.

meps

QUERY

SHARE

COPY

SNAPSHOT

DELETE

EXPORT

SCHEMA

DETAILS

PREVIEW

TABLE EXPLORER

PREVIEW

INSIGHTS

LINEAGE

Filter

Enter property name or value

<input type="checkbox"/>	Field name	Type	Mode	Key	Collation	Default value	Policy tags
<input type="checkbox"/>	mep_id	INTEGER	NULLABLE	-	-	-	-
<input type="checkbox"/>	first_name	STRING	NULLABLE	-	-	-	-
<input type="checkbox"/>	last_name	STRING	NULLABLE	-	-	-	-
<input type="checkbox"/>	salary	FLOAT	NULLABLE	-	-	-	-
<input type="checkbox"/>	bonus_pct	FLOAT	NULLABLE	-	-	-	-
<input type="checkbox"/>	email	STRING	NULLABLE	-	-	-	-
<input type="checkbox"/>	tel	STRING	NULLABLE	-	-	-	-
<input type="checkbox"/>	internet	STRING	NULLABLE	-	-	-	-



DETAILS Tab

In the DETAILS Tab, I can view the ID of my table.
I can also see the Region, i.e. the location of the table.

mepps

QUERY

SHARE

COPY

SN

SCHEMA

DETAILS

PREVIEW

TABLE EXPLORER

Table info

Table ID	meta-altar-436208-u2.kayeilsql.mepps
Created	23 Sept 2024, 10:27:24 UTC+3
Last modified	23 Sept 2024, 10:27:24 UTC+3
Table expiry	NEVER
Data location	us-central1
Default collation	
Default rounding mode	ROUNDING_MODE_UNSPECIFIED
Case insensitive	false
Description	
Labels	
Primary key(s)	
Tags	

At the lower part of the DETAILS tab, I can see the number of rows in my table.

Storage info

Number of rows	787
Total logical bytes	99.13 KB
Active logical bytes	99.13 KB
Long-term logical bytes	0 B
Total physical bytes	35.42 KB
Active physical bytes	35.42 KB
Long-term physical bytes	0 B
Time travel physical bytes	0 B

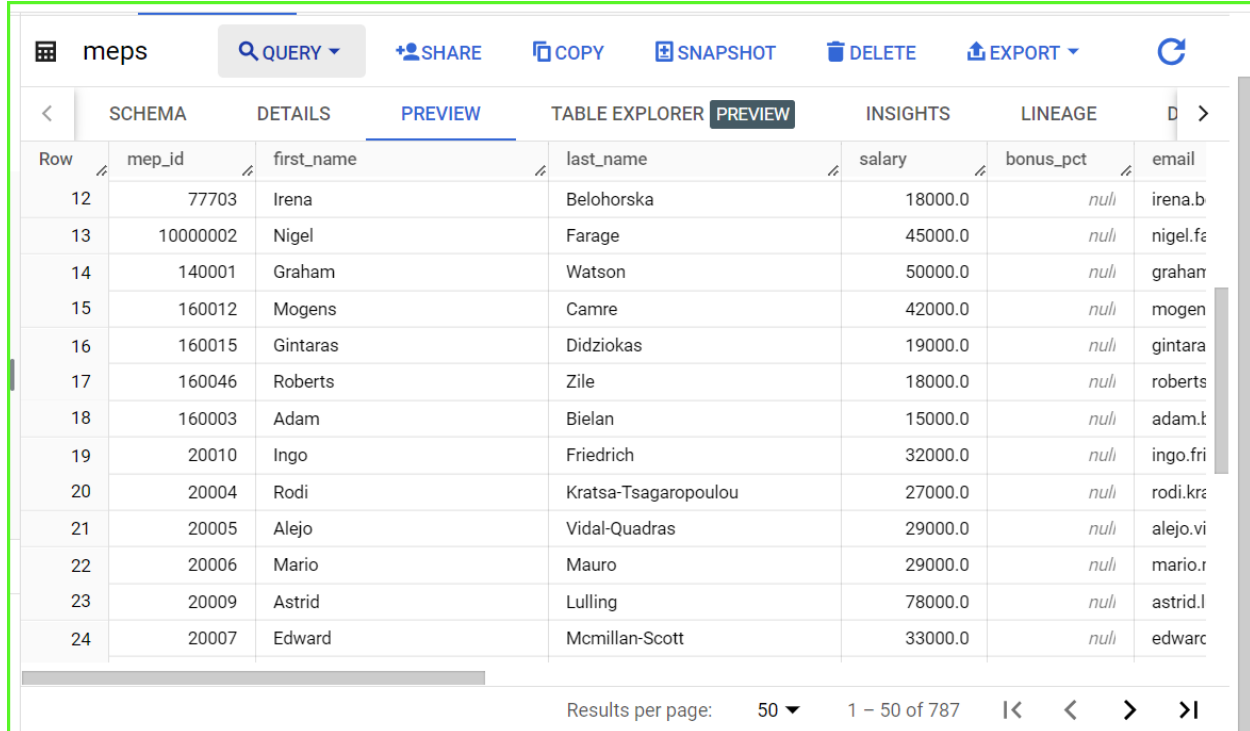


Create a Table in BigQuery from a CSV File

PREVIEW Tab

In the PREVIEW Tab, I can see my data.

The data, which was in the csv table, and uploaded into Google Cloud BigQuery, from my laptop.



The screenshot shows the Google Cloud BigQuery interface. At the top, there's a toolbar with buttons for QUERY, SHARE, COPY, SNAPSHOT, DELETE, and EXPORT. Below this is a navigation bar with tabs: SCHEMA, DETAILS, PREVIEW (selected), TABLE EXPLORER, INSIGHTS, and LINEAGE. The main area displays a table with 8 columns: Row, mep_id, first_name, last_name, salary, bonus_pct, and email. The table contains 13 rows of data. At the bottom, there's a pagination bar showing 'Results per page: 50' and '1 - 50 of 787'.

Row	mep_id	first_name	last_name	salary	bonus_pct	email
12	77703	Irena	Belohorska	18000.0	null	irena.b
13	10000002	Nigel	Farage	45000.0	null	nigel.f
14	140001	Graham	Watson	50000.0	null	grahan
15	160012	Mogens	Camre	42000.0	null	mogen
16	160015	Gintaras	Didziokas	19000.0	null	gintara
17	160046	Roberts	Zile	18000.0	null	roberts
18	160003	Adam	Bielan	15000.0	null	adam.t
19	20010	Ingo	Friedrich	32000.0	null	ingo.fri
20	20004	Rodi	Kratsa-Tsagaropoulou	27000.0	null	rodi.kr
21	20005	Alejo	Vidal-Quadras	29000.0	null	alejo.vi
22	20006	Mario	Mauro	29000.0	null	mario.r
23	20009	Astrid	Lulling	78000.0	null	astrid.l
24	20007	Edward	Mcmillan-Scott	33000.0	null	edwarc

This is the easiest and quickest way to create a table, and insert data in it, that I have come

across so far

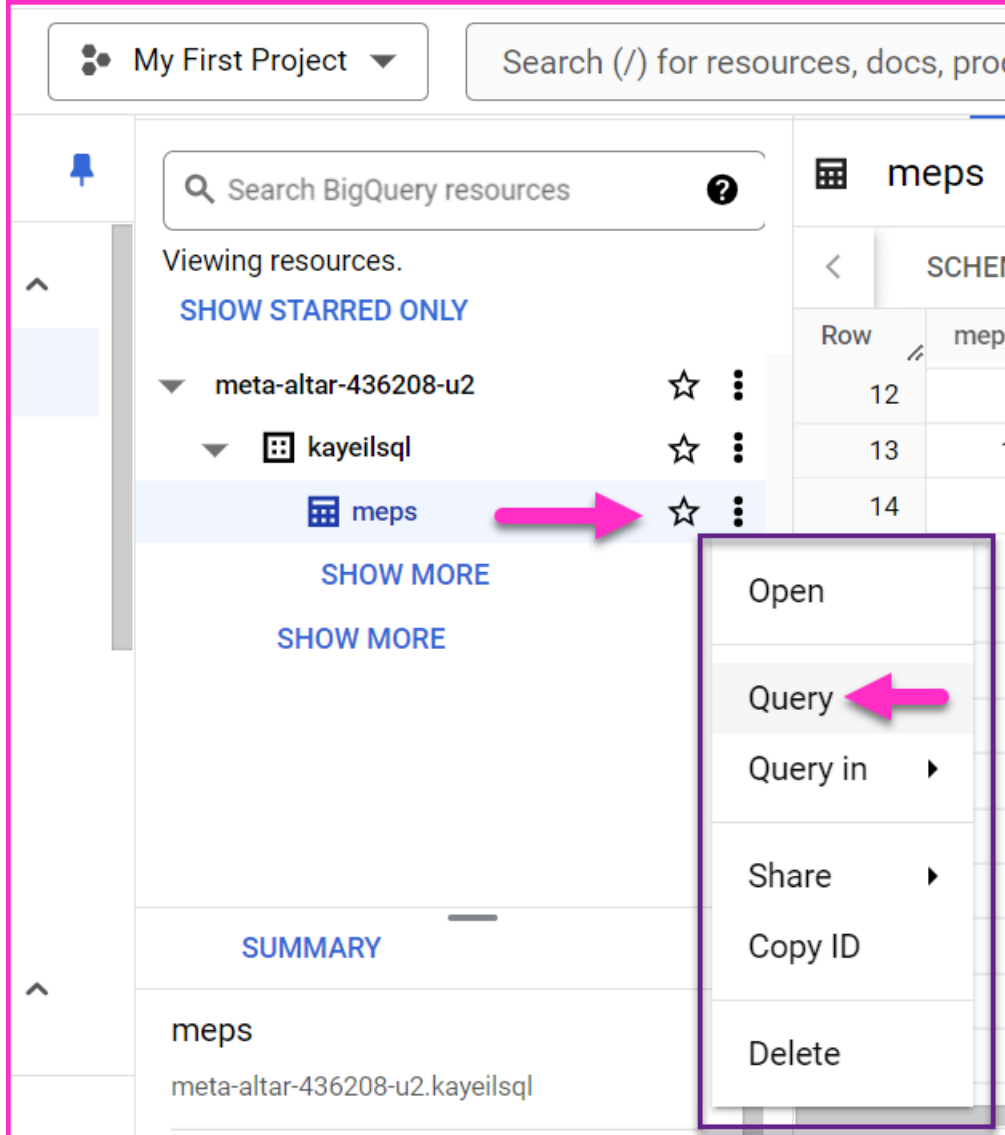


Well done Google BigQuery

Step 7. Query the Table

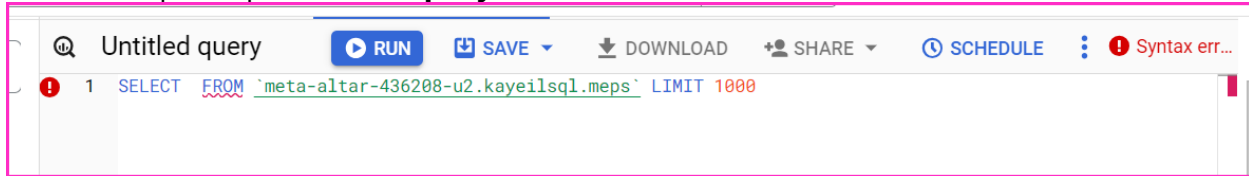
I can now query my Table in Google Cloud BigQuery.

I click on the **three vertical dots** next to my table name, and then click on **Query**.



Query Window

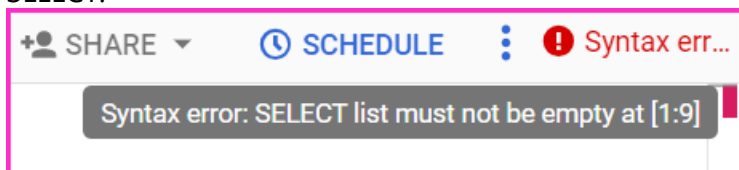
A window opens up – **Untitled query**.



Query Syntax

I can see an incomplete SQL query – no columns.

There is even a Syntax error on the top right, which signifies that there are no columns to SELECT.



Nevertheless, BigQuery gave me the full syntax to query a table.

project_name.dataset_name.table_name



We will not use this full syntax in our queries.

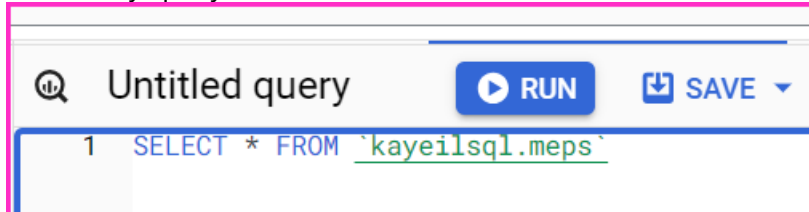
We will only specify **dataset_name.table_name**.

Create a Table in BigQuery from a CSV File

I change this SELECT Statement slightly.

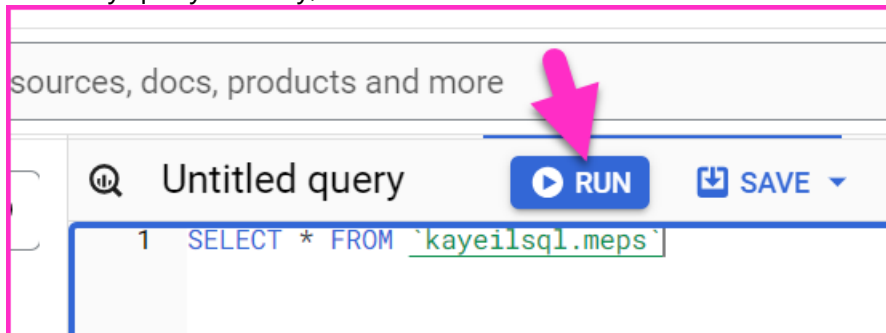
- 🧠 I input a * meaning, display all the columns of the table.
- 🧠 I get rid of the project name.
- 🧠 I clear the LIMIT clause.

Here is my query now.



Run the Query

Once my query is ready, I click on the RUN button.



Here are my Query results.

Query results

Row	mep_id	first_name	last_name	salary	bonus_pct
1	60033	Raúl	Romeva I Rueda	24000.0	0
2	10000011	Kathy	Sinnot	34000.0	0
3	40001	Martin	Schulz	48000.0	n
4	60002	Daniel	Cohn-Bendit	43000.0	n
5	1	Hans-Gert	Pöttering	40000.0	n
6	10000001	Hanne	Dahl	48000.0	n
7	20001	Joseph	Daul	48000.0	n
8	80001	Francis	Wurtz	null	n
9	160001	Brian	Crowley	54000.0	n
10	60001	Monica	Fraenken	39000.0	n

Results per page: 50 1 - 50 of 787

Create a Table in BigQuery from a CSV File

I can go to the Next 50 rows.

8	80001	Francis	Wurtz	null	n
9	160001	Brian	Crowley	54000.0	n
10	60001	Monica	Frassoni	39000.0	n

Results per page: 50 1 – 50 of 787

Next 50 rows

I can go to the Last 50 rows.

10	60001	Monica	Frassoni	39000.0	n
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Results per page: 50 1 – 50 of 787

Last 50 rows

Query results						
Press Alt+F1 for accessibility options.						
SAVE RESULTS EXPLORE DATA						
JOB INFORMATION RESULTS CHART JSON EXECUTION DETAILS EXECUTION GRAPH						
Row	mep_id	first_name	last_name	salary	bonus_pct	
779	40209	Bernadette	Vergnaud	27000.0	0.0	
780	40076	Giovanni Claudio	Fava	24000.0	0.0	
781	40015	Pasqualina	Napoletano	24000.0	0.0	
782	40013	Robert	Goebbels	65000.0	0.0	
783	40097	Louis	Grech	18000.0	0.0	
784	40026	John	Attard-Montalto	18000.0	0.0	
785	40093	Ana Maria	Gomes	18000.0	0.0	
786	40143	David W.	Martin	28000.0	0.0	
787	10000010	Georgios	Georgiou	23000.0	0.0	

Results per page: 50 751 – 787 of 787

Job history REFRESH

The End

This is how we create a table in Google Cloud BigQuery with full data, using a CSV file from our local computer.

I can now create all my other tables in the same way.

All my tables will be under the same Dataset "**kayeilsql**".

I can now go ahead and start working on my SQL Queries.

I can then create Looker Studio reports.

I wish you all the best, health, courage, hope, strength and the will to go after your dreams.



Dicle Ertan Ülger

If you don't go after what
You want, you'll never have it.

If you don't ask, the answer
Is always "No".

If you don't step forward,
You're always in the same place.

-- Anonymous

