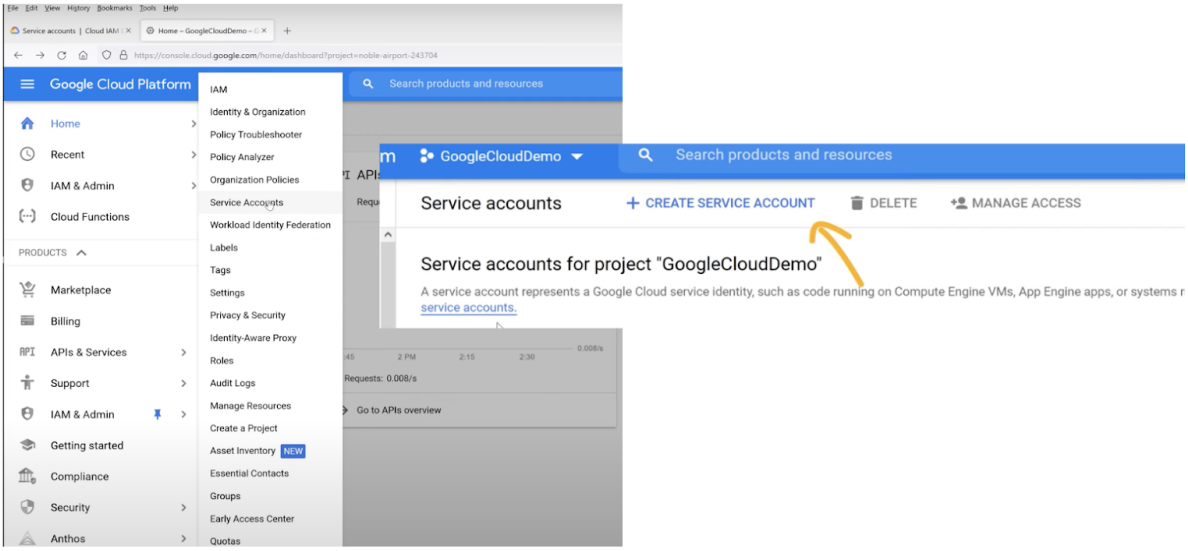
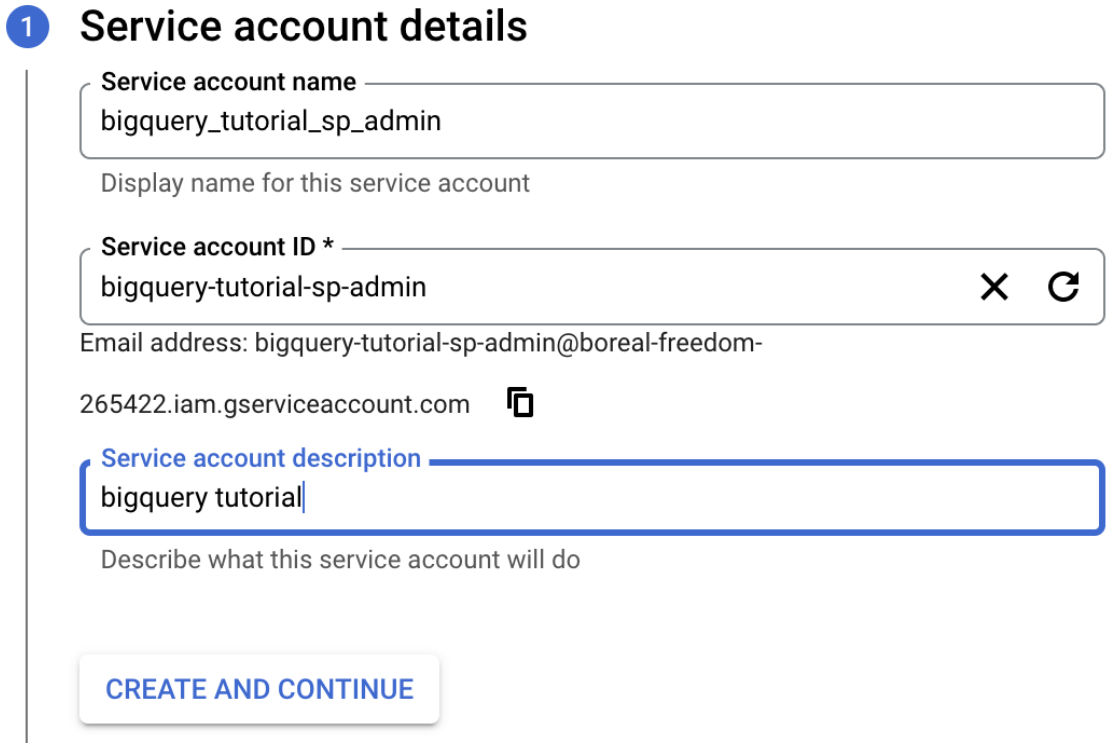
BigQuery Setup Instructions

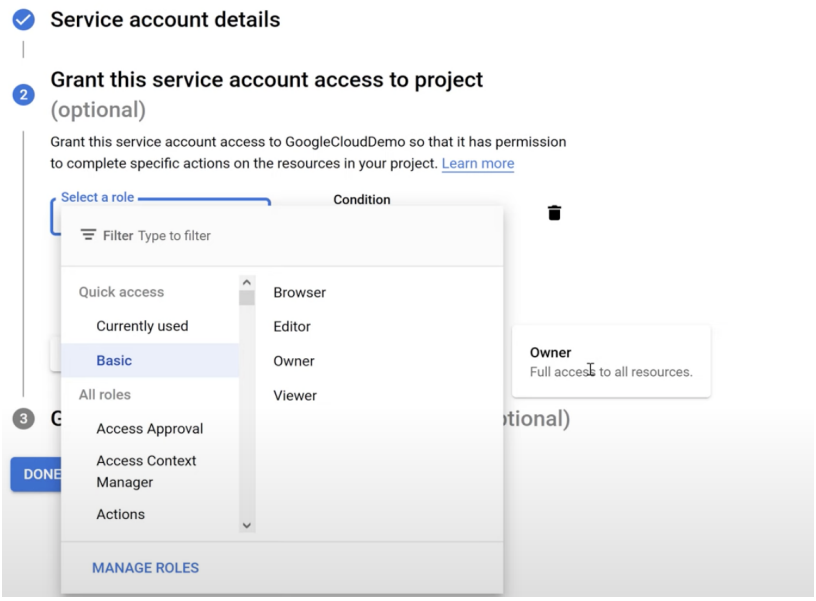
1. Make sure you have a Gmail account set up .
2. Go to console.cloud.google.com. Click on the navigation (hamburger icon on upper left), then click on IAM & Admin. Under IAM & Admin click on services accounts and create a service account:



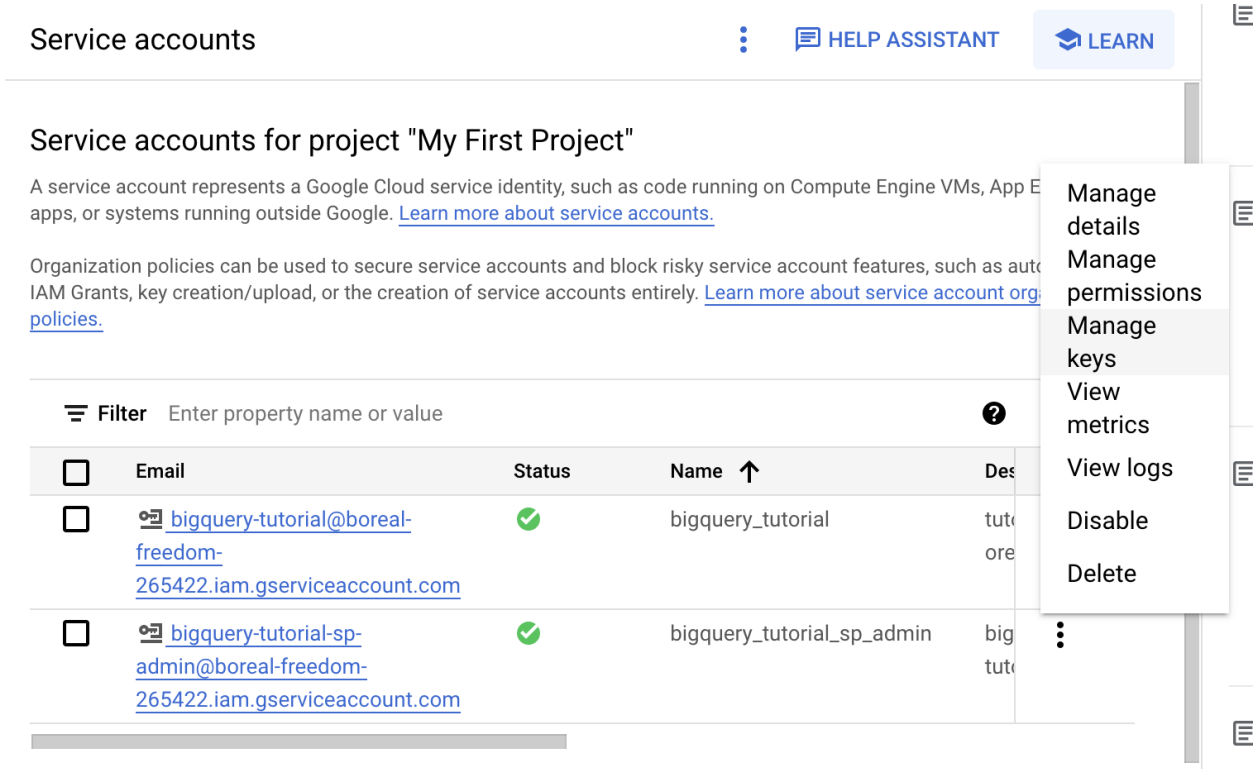
3. Next add name and description. Click create and continue:



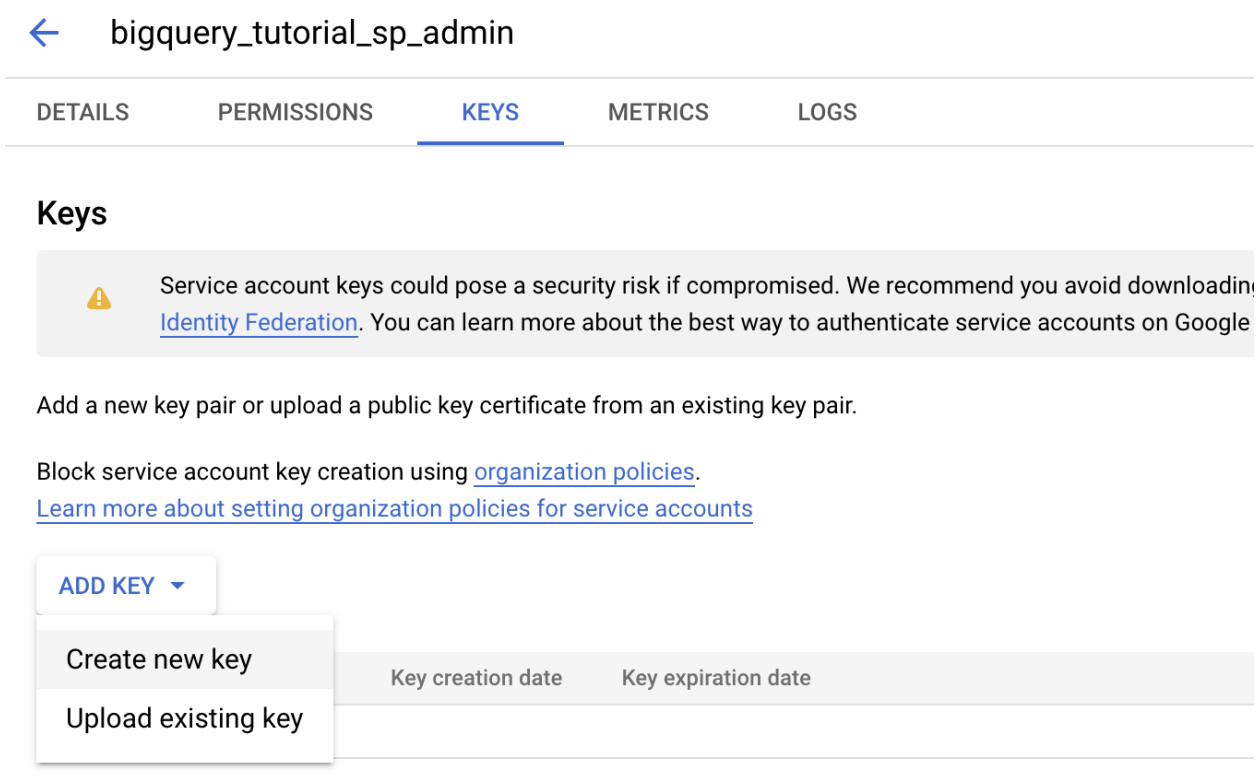
1. Next click on basic, then owner, then continue and then done:



Next click on manage keys for your newly created service account:



Click on add and create keys:



Select JSON and click create:

Create private key for "bigquery_tutorial_sp_admin"

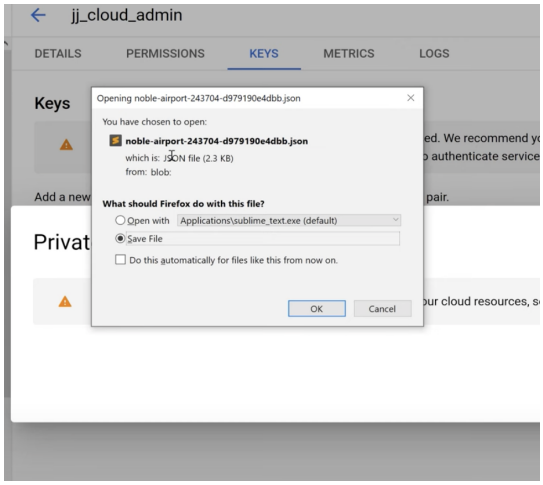
Downloads a file that contains the private key. Store the file securely because this key can't be recovered if lost.

Key type

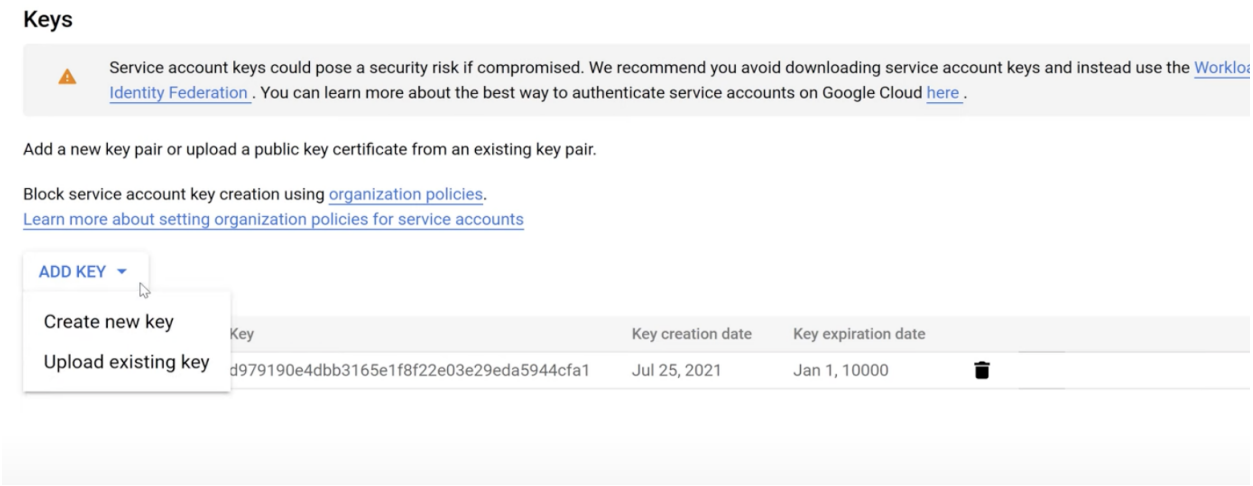
- (•) JSON
  Recommended
- ( ) P12
  For backward compatibility with code using the P12 format

CANCEL CREATE

Create JSON and save in project folder. You can now save the JSON to your computer. I recommend renaming the file to something easy to understand:



If you lose your key you can easily create a new one:

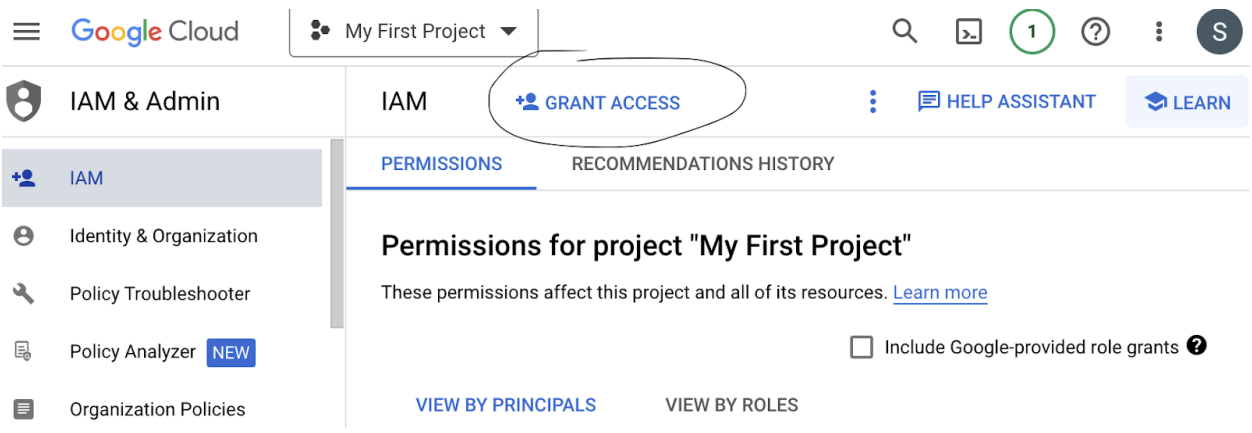


Adding BigQuery Job User Role

To make queries we need to add a principal and grant access to the BigQuery Job User Role. Open you JSON file and copy the email in the field client_email:

```
{
    "type": "service_account",
    "project_id": "your-project-id",
    "private_key_id": "your-private-key-id",
    "private_key_id": "your-private-key",
    "client_email": "your-client-email",
    "client_id": "your-client-id",
    "auth_uri": "https://accounts.google.com/o/oauth2/auth",
    "token_uri": "https://oauth2.googleapis.com/token",
    "auth_provider_x509_cert_url": "https://www.googleapis.com/oauth2/v1/certs",
    "client_x509_cert_url": "https://www.googleapis.com/robot/v1/metadata/x509/"
}
```

Next click on IAM and then click on grant access:



Copy and paste your email into the principal field:

Grant principals access to this resource and add roles to specify what actions the principals can take. Optionally, add conditions to grant access to principals only when a specific criteria is met. Learn more about IAM conditions

Resource

My First Project

Add principals

Principals are users, groups, domains, or service accounts. Learn more about principals in IAM

New principals *

Assign roles

Roles are composed of sets of permissions and determine what the principal can do with this resource. Learn more

Select a role *

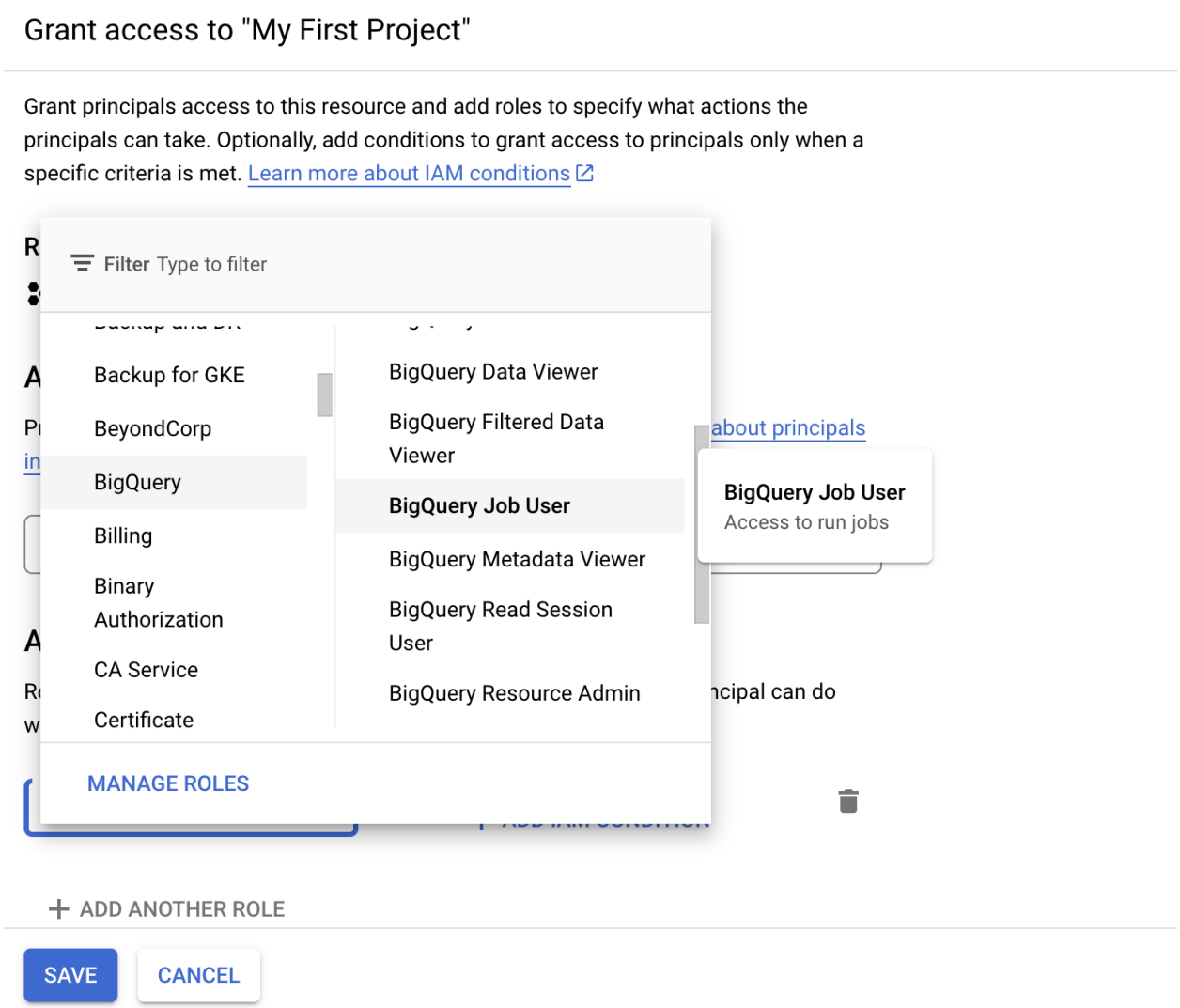
IAM condition (optional)

+ ADD IAM CONDITION

+ ADD ANOTHER ROLE

SAVE CANCEL

Next click on select a role and add the BigQuery Job User role and save:



You should now be able to use your key to run job queries.

To create a BigQuery client, create a new folder on your desktop called ‘bigquery_tutorial’. Next, open a Jupyter notebook and save it in the ‘bigquery_tutorial’ folder. Also drag and drag the JSON private key file into the ‘bigquery_tutorial’ folder.

You can use the following code to create a client. In the first cell of your Jupyter notebook copy, paste and execute this command:

%pip install google-cloud-bigquery

In the subsequent cell you can paste the following to define your bigquery client:

```
import os
from google.cloud import bigquery
```

```
os.environ['GOOGLE_APPLICATION_CREDENTIALS'] = 'oreilly_demo_key.json'
client = bigquery.Client()
```

During the course you will learn how to access tables using this client!