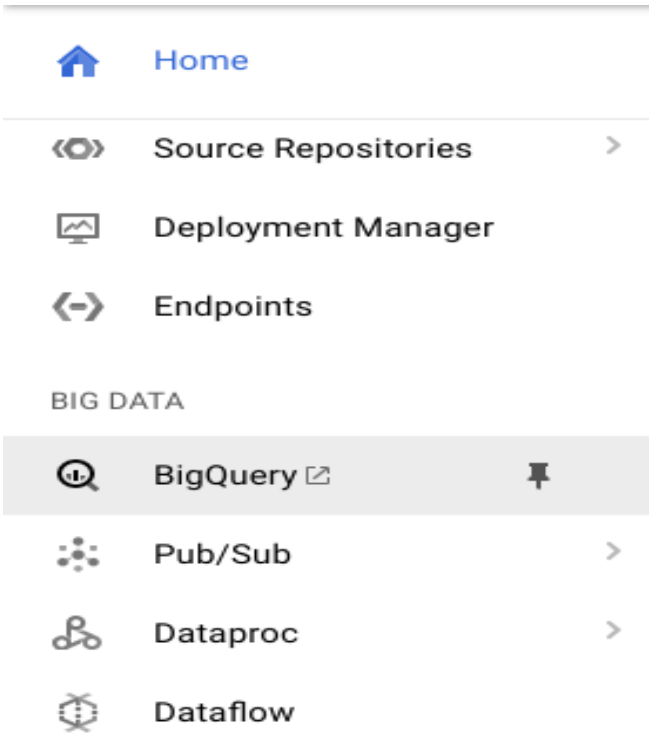
CREATE A SERVERLESS IOT DATA PROCESSING

CREATE A BIG QUERY TABLE:

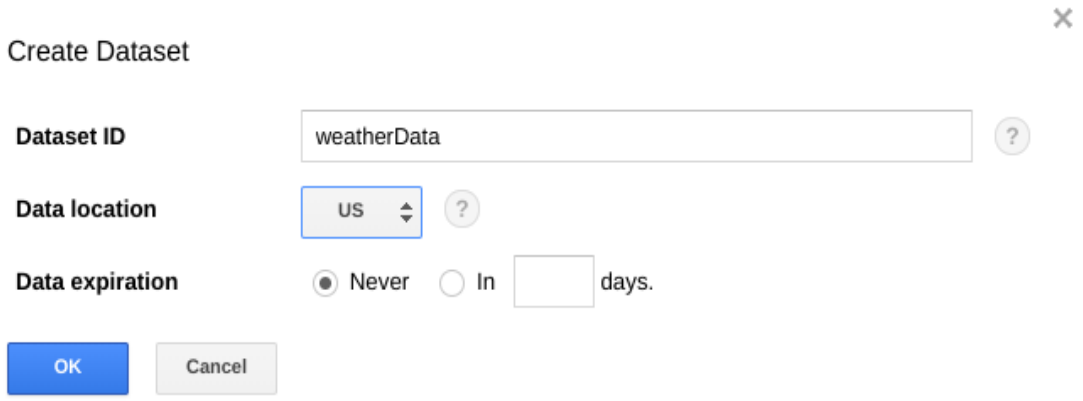
Big Query is a serverless, highly scalable, low-cost enterprise data warehouse and will be an ideal option to store data being streamed from IoT devices while also allowing an analytics dashboard to query the information.

Let's create a table that will hold all the IoT weather data. Select Big Query from the Cloud console. **This will open Big Query in a new window** (don't close the original window as you'll need to access it again).



Click on the down arrow icon next to your project name and then select "Create new dataset"

Enter "weather Data" for the Dataset, select a location where it will be stored and Click "OK".



now have a data warehouse setup to receive your weather data.

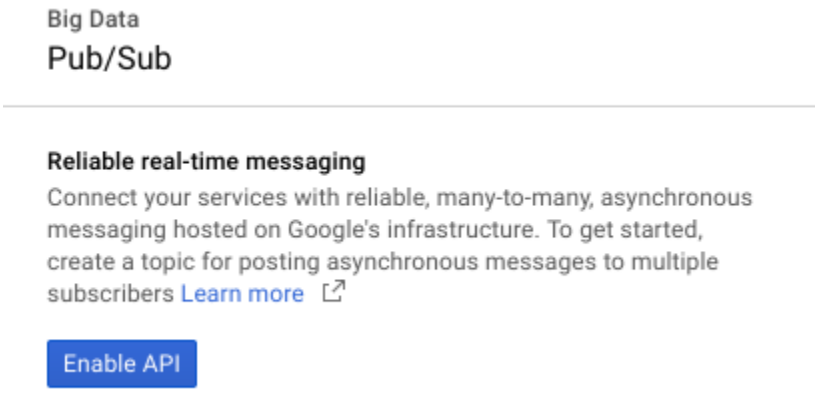
CREATE A PUB/SUBTOPIC:

Cloud pub/sub is a simple, reliable, scalable foundation for stream analytics and event-driven computing systems. As a result, it is perfect for handling incoming IOT messages and then allowing downstream systems to process them.

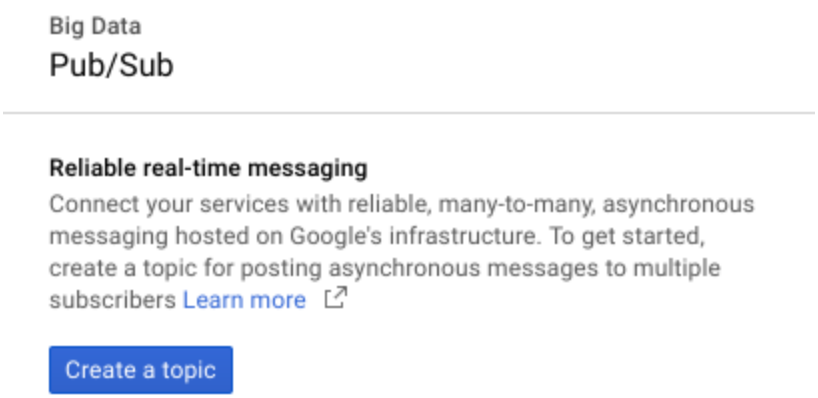
If you are still in the window for Big Query, switch back to the Cloud Console. If you closed the Cloud Console, go to https://console.cloud.google.com

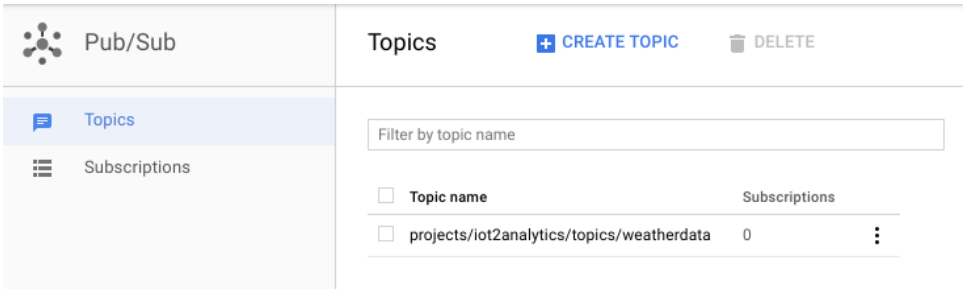
From the Cloud Console, select Pub/Sub and then Topics.

If you see an Enable API prompt, click the Enable API button.

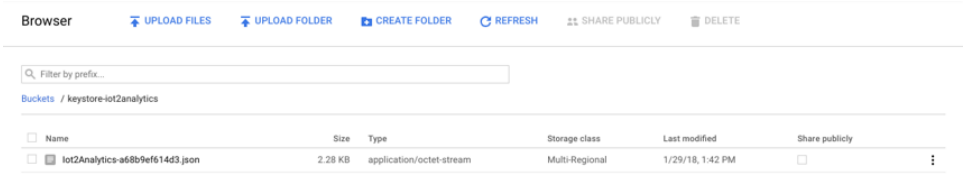


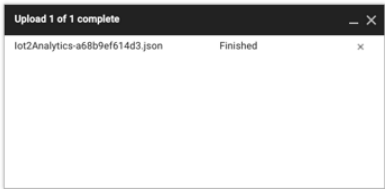
Click on the Create a topic button





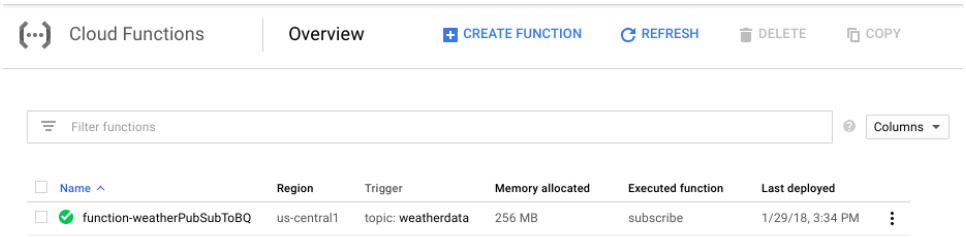
After the key upload is complete, it should appear in the Cloud Storage browser.





CREATE A CLOUD FUNCTION:

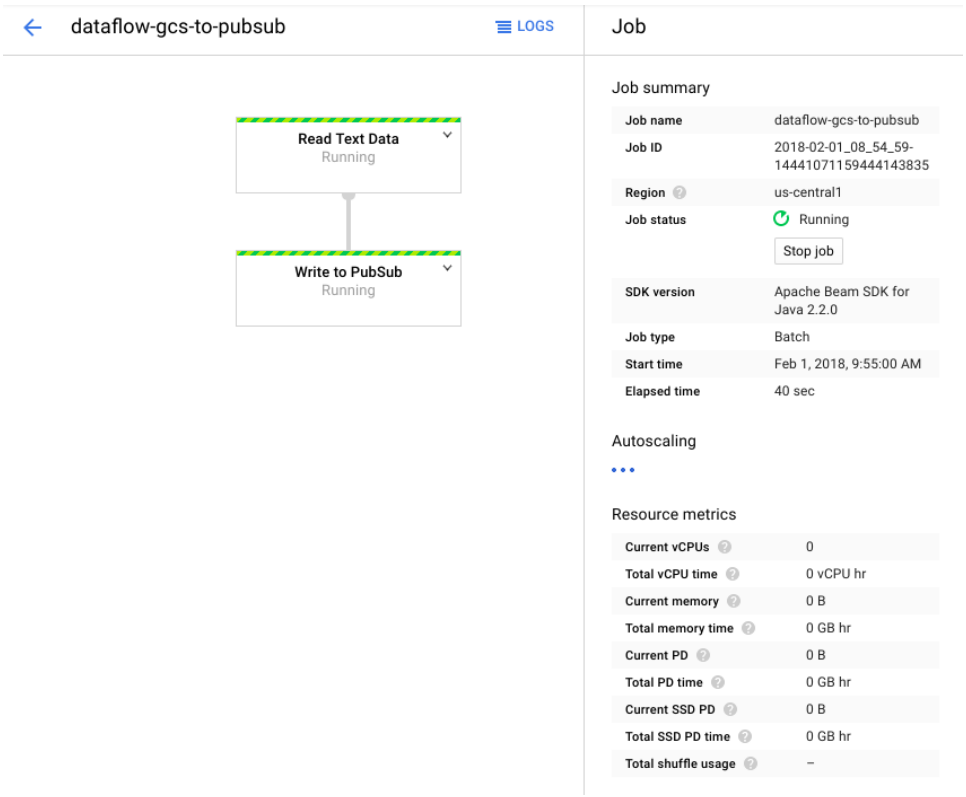
Cloud computing has made possible fully serverless models of computing where logic can be spun up on-demand in response to events originating from anywhere. For this lab, a Cloud Function will start each time a message is published to the weather topic, will read the message and then store it in BigQuery.



We just connected Pub/Sub to Big Query via Functions.

START THE DATA PIPELINE:

Might need to enable compute API.



CHECK THAT DATA IS FLOWING:

CLOUD FUNCTION LOGS:

Ensure that the Cloud Function is being triggered by Pub/Sub

gcloud beta functions logs read function-weatherPubSubToBQ

New Query

Query Editor | UDF Editor

```
SELECT * FROM [iot2analytics:weatherData.weatherDataTable] LIMIT 1000
```

SQL

Ctrl + Enter: run query, Tab or Ctrl + Space: autocomplete.

RUN QUERY | Save Query | Save View | Format Query | Show Options | Query complete (1.2s elapsed, 0 B processed)

Results | Details | Download as CSV | Download as JSON | Save as Table | Save to Google Sheets

Row	sensorID	timecollected	zipcode	latitude	longitude	temperature	humidity	dewpoint	pressure
1	s-testing	2018-01-30 20:02:11.000 UTC	94043	37.421655	-122.085637	70.86	18.33	41.46	24.19
2	s-testing	2018-01-30 20:11:13.000 UTC	94043	37.421655	-122.085637	70.85	18.24	41.42	24.18
3	s-testing	2018-01-30 20:06:12.000 UTC	94043	37.421655	-122.085637	70.89	18.28	41.47	24.19
4	s-testing	2018-01-30 20:09:13.000 UTC	94043	37.421655	-122.085637	70.86	18.23	41.43	24.18
5	s-testing	2018-01-30 20:08:12.000 UTC	94043	37.421655	-122.085637	70.88	18.27	41.46	24.18
6	s-testing	2018-01-30 20:15:14.000 UTC	94043	37.421655	-122.085637	70.87	18.26	41.45	24.18
7	s-testing	2018-01-30 20:01:11.000 UTC	94043	37.421655	-122.085637	70.9	18.58	41.59	24.19
8	s-testing	2018-01-30 20:14:14.000 UTC	94043	37.421655	-122.085637	70.83	18.22	41.39	24.18
9	s-testing	2018-01-30 20:13:14.000 UTC	94043	37.421655	-122.085637	70.86	18.25	41.43	24.18

Table | JSON

First < Prev Rows 1 - 9 of 16 Next > Last

CREATE A DATA STUDIO DASHBOARD:

Google data studio turns our data into informative dashboards and reports that are easy to read, easy to share, and fully customizable.