# Link

<https://cloud.google.com/bigquery/docs/arima-single-time-series-forecasting-tutorial>

<https://cloud.google.com/blog/topics/developers-practitioners/how-build-demand-forecasting-models-bigquery-ml>

<https://cloud.google.com/blog/topics/developers-practitioners/how-build-demand-forecasting-models-bigquery-ml>

# Create Table and Set Bigquery scheduling to add new one

## Create new

CREATE TABLE SMART\_TS\_Forecast.n\_daily\_inident AS

SELECT date, CAST(count\_incident AS INT64) as count\_incident,'incident' as cate FROM `SMartDW.daily\_incident` order by date

## Fill New on daily basis using Bigquery Scheduling

SELECT date, CAST(count\_incident AS INT64) as count\_incident,'incident' as cate FROM `SMartDW.daily\_incident`   where date=(select max(date) from `SMartDW.daily\_incident`   ) order by date

# Explore data

# query data over the last 30 days from SMART\_TS\_Forecast.n\_daily\_inident

SELECT

  date,

  count\_incident

FROM

  `SMART\_TS\_Forecast.n\_daily\_inident`

WHERE

  date >= DATE\_SUB(Date(date), INTERVAL 30 DAY) ORDER BY

  date DESC

# Create Model

CREATE OR REPLACE MODEL `SMART\_TS\_Forecast.model\_daily\_incident\_forecast`

OPTIONS(

  model\_type='ARIMA\_PLUS',

         time\_series\_timestamp\_col='date',

         time\_series\_data\_col='count\_incident',

         auto\_arima = TRUE,

         data\_frequency = 'AUTO\_FREQUENCY',

         decompose\_time\_series = TRUE

         ) AS

SELECT

  date,

  count\_incident

FROM

  `SMART\_TS\_Forecast.n\_daily\_inident`

Where date<='2024-01-31'

order by date

# Evaluate Model

#standardSQL

SELECT

 \*

FROM

 ML.ARIMA\_EVALUATE(MODEL `SMART\_TS\_Forecast.model\_daily\_incident\_forecast`)

# Inspect the coefficients of your model

 SELECT \* FROM

 ML.ARIMA\_COEFFICIENTS(MODEL `SMART\_TS\_Forecast.model\_daily\_incident\_forecast`)

# Use your model to forecast the time series & Explain and visualize the forecasting results

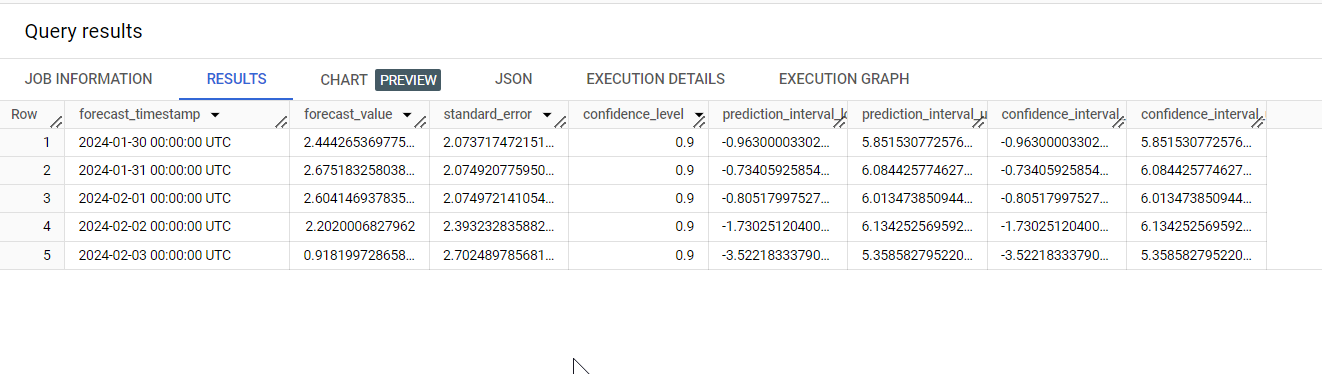
SELECT

 \*

FROM

 ML.FORECAST(MODEL `SMART\_TS\_Forecast.model\_daily\_incident\_forecast`,

             STRUCT(5 AS horizon, 0.9 AS confidence\_level))



SELECT

 \*

FROM

  ML.EXPLAIN\_FORECAST(MODEL `SMART\_TS\_Forecast.model\_daily\_incident\_forecast`,

             STRUCT(5 AS horizon, 0.9 AS confidence\_level))