

Amazon Athena Demo

- Author: *Mahmoud Parsian*
- Date: *June 4, 2019*

1. Input Prep: Create a Data File(s)

Record format:

```
<customer_id><,><year><,><transaction_id><,><price>
```

```
$ cat customers.txt
c1,2019,t00012,12.5677
c1,2019,t00010,14.56
c1,2019,t00011,14.56
c1,2018,t000126,12.5677
c1,2018,t000107,140.56
c1,2018,t000119,164.56
c1,2017,t100126,120.5677
c1,2017,t100107,1400.56
c1,2017,t100119,1640.56
c2,2019,t90012,12.5677
c2,2019,t90010,147.56
c2,2019,t90011,147.56
c2,2018,t0800126,127.5677
c2,2018,t0080107,1470.56
c2,2018,t0008119,164.56
c2,2017,t1001526,1720.5677
c2,2017,t1001057,14700.56
c2,2017,t1001195,16740.56
```

2. Upload the Input to Amazon S3

```
$ aws s3 cp customers.txt s3://mybucket/SCU/customers.txt
```

3. Read Data from S3, create a DataFrame and create data

partitions:

```
cat extract_and_load.py

#!/usr/bin/python
#-----
from __future__ import print_function
import sys
from pyspark.sql import SparkSession
from pyspark.sql.types import StructType
from pyspark.sql.types import StructField
from pyspark.sql.types import StringType
from pyspark.sql.types import DoubleType

#-----
def getSparkSession():
    return SparkSession\
        .builder\
        .appName("Example")\
        .config("hive.metastore.connect.retries", 5)\
        .enableHiveSupport()\
        .getOrCreate()
#end-def
#-----

customer_schema = StructType([
    StructField("customer_id", StringType(), True),
    StructField("date", StringType(), True),
    StructField("transaction_id", StringType(), True),
    StructField("price", DoubleType(), True)])

input_path = "s3://mybucket/SCU/customers.txt"

spark = getSparkSession()

df = spark.read.csv(input_path, schema=customer_schema)

df.show(100, truncate=False)
df.printSchema()

# partition data
df.repartition("customer_id", "date")\
    .write.partitionBy("customer_id", "date")\
```

```
.parquet("s3://caselogdev/output/SCU/")  
#  
# done!  
spark.stop()
```

4. Create a sample database (catalog) called sampleddb

A database in Athena is a logical grouping for tables you create in it. Open the [Athena console](#) . Enter

```
CREATE DATABASE sampleddb;
```

and choose Run Query.

For details on creating a database and schema, see [How to create a database in Amazon Athena](#)

5. Create schema and point to the output created by PySpark program (in Athena Web Console)

```
CREATE EXTERNAL TABLE `sampleddb.customers`(  
  `transaction_id` string,  
  `price` double  
)  
PARTITIONED BY (  
  `customer_id` string,  
  `date` string  
)  
STORED AS PARQUET  
LOCATION 's3://mybucket/output/SCU/'  
tblproperties ("parquet.compress"="SNAPPY");
```

6. Load partitions (in Athena Web Console)

```
MSCK REPAIR TABLE customers;
```

7. Ready to query customers table: (in Athena Web Console):

```
SELECT * FROM "sampledb"."customers";
```

Results

	transaction_id	price	customer_id	date
1	t0800126	127.5677	c2	2018
2	t0080107	1470.56	c2	2018
3	t0008119	164.56	c2	2018
4	t1001526	1720.5677	c2	2017
5	t1001057	14700.56	c2	2017
6	t1001195	16740.56	c2	2017
7	t100126	120.5677	c1	2017
8	t100107	1400.56	c1	2017
9	t100119	1640.56	c1	2017
10	t90012	12.5677	c2	2019
11	t90010	147.56	c2	2019
12	t90011	147.56	c2	2019
13	t000126	12.5677	c1	2018
14	t000107	140.56	c1	2018
15	t000119	164.56	c1	2018
16	t00012	12.5677	c1	2019
17	t00010	14.56	c1	2019
18	t00011	14.56	c1	2019