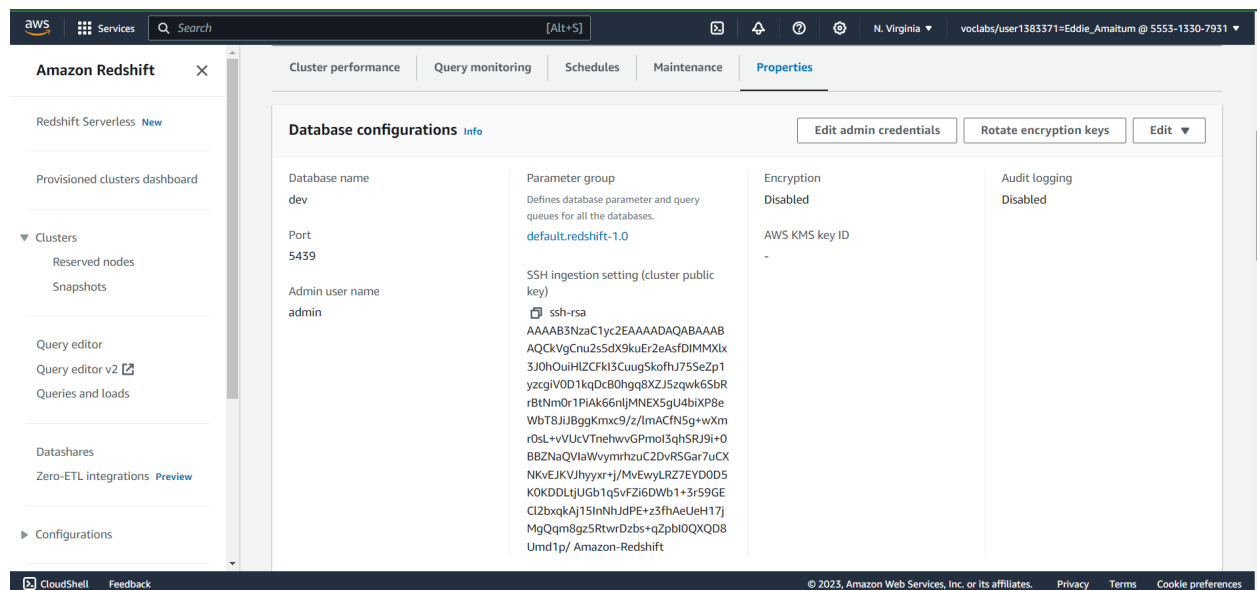
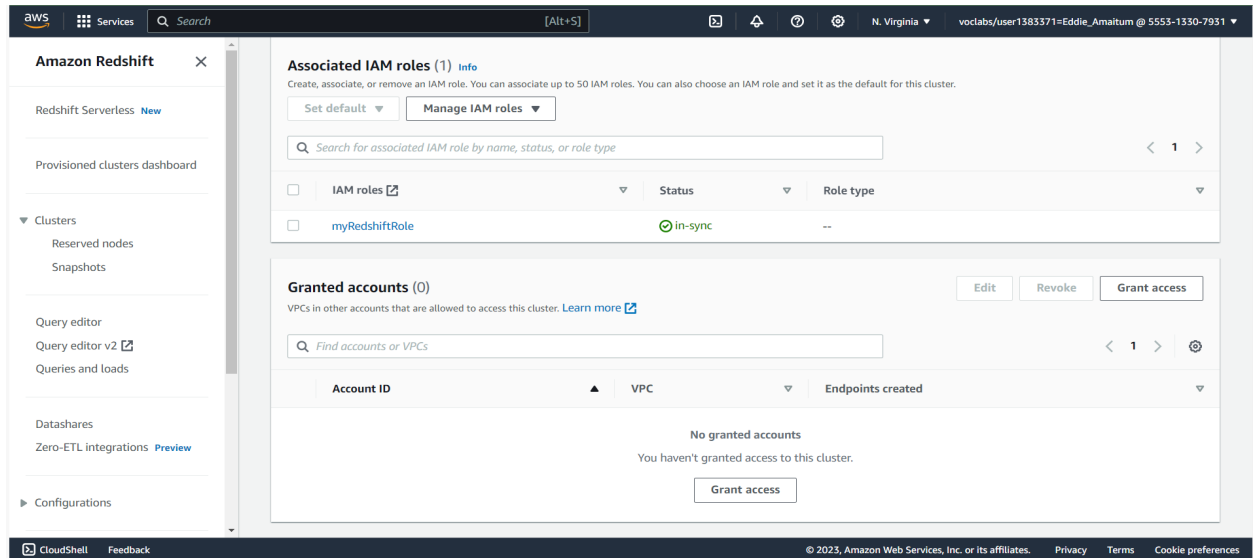


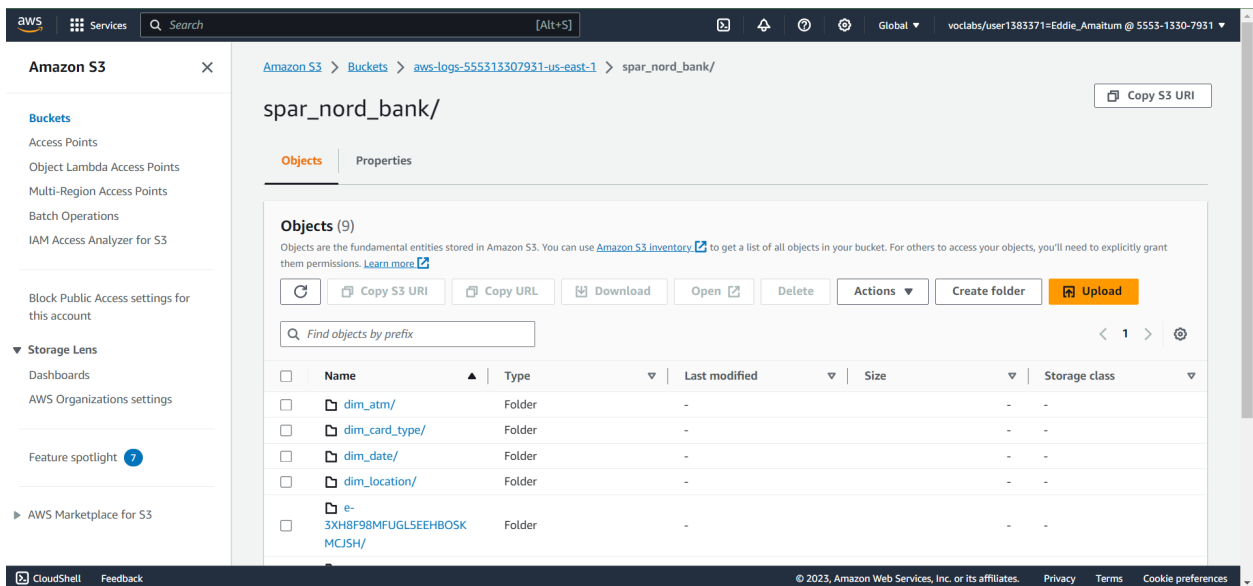
## Screenshots of the configuration of the Redshift cluster





## Setting up a database in the Redshift cluster and running queries to create the dimension and fact tables

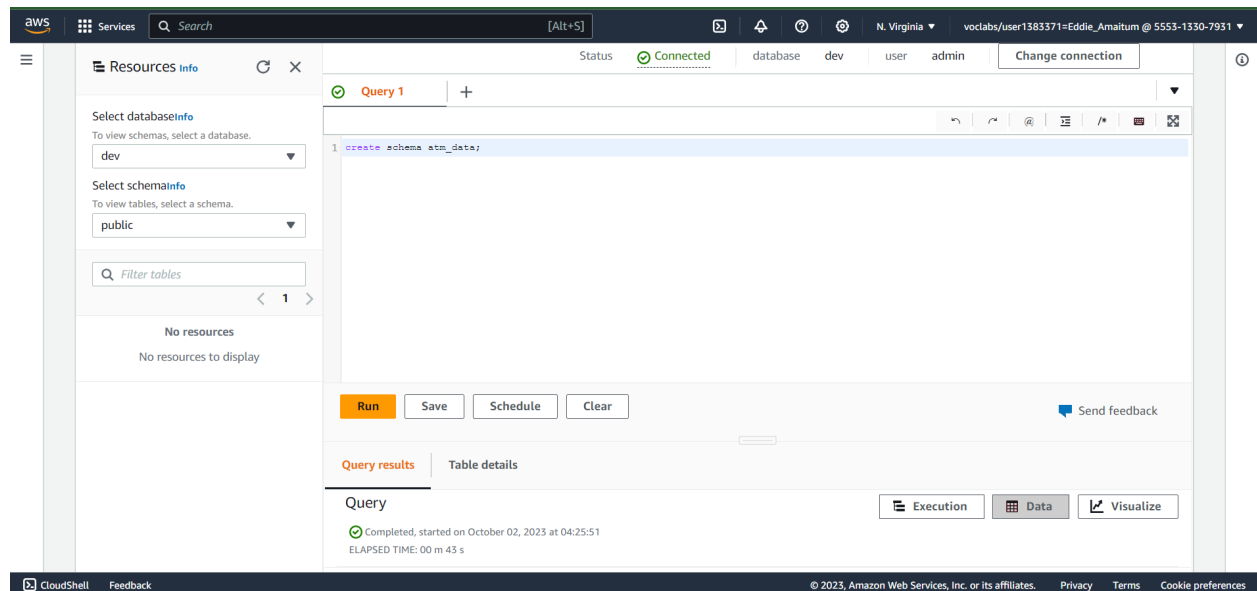
### S3 bucket containing files:



## Queries to create the various dimension and fact tables with appropriate primary and foreign keys

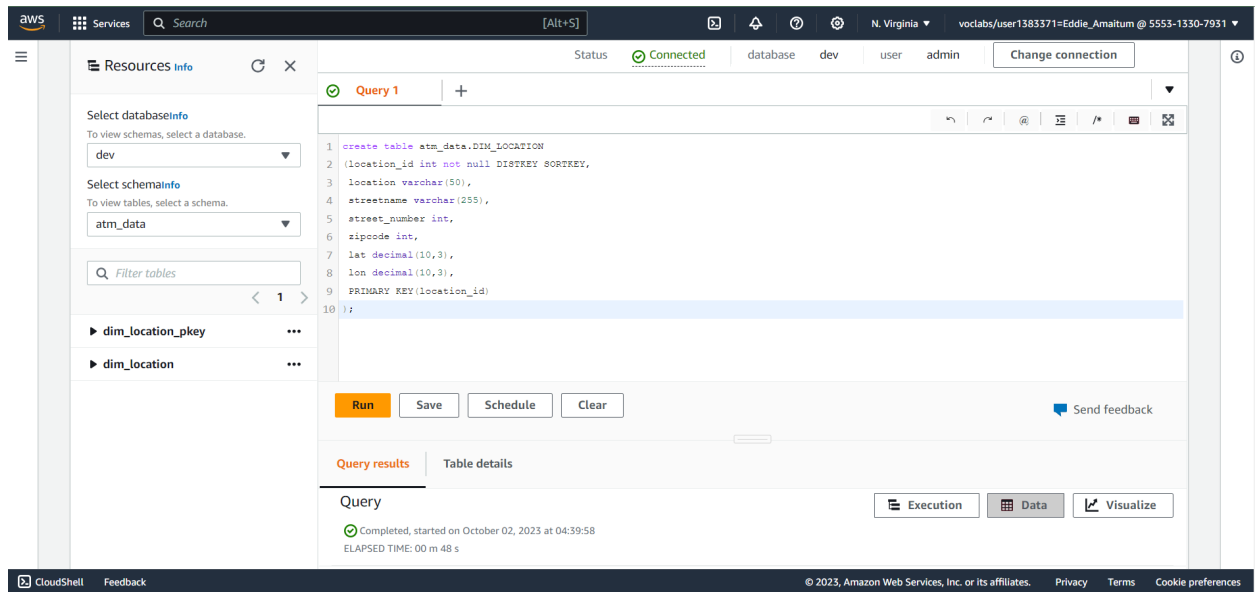
### Query for creating schema:

```
create schema atm_data;
```



### Query for creating location dimension table:

```
create table atm_data.DIM_LOCATION  
(  
  location_id int not null DISTKEY SORTKEY,  
  location varchar(50),  
  streetname varchar(255),  
  street_number int,  
  zipcode int,  
  lat decimal(10,3),  
  lon decimal(10,3),  
  PRIMARY KEY(location_id)  
);
```



## Query for creating atm dimension table :

create table atm\_data.DIM\_ATM

(

atm\_id int not null DISTKEY SORTKEY,

atm\_number varchar(20),

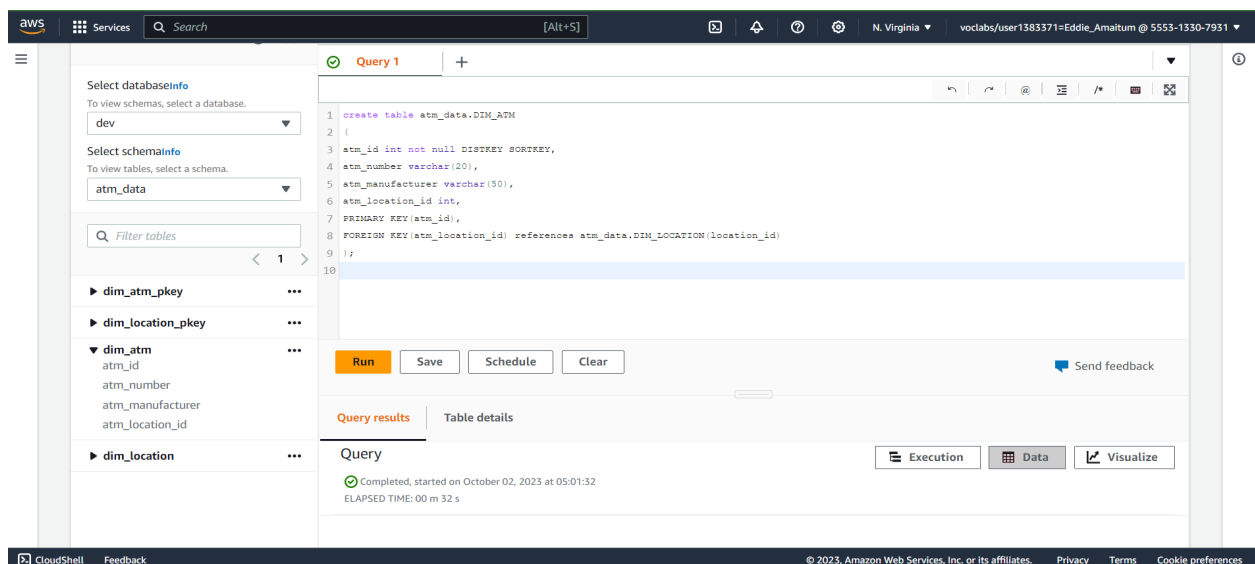
atm\_manufacturer varchar(50),

atm\_location\_id int,

PRIMARY KEY(atm\_id),

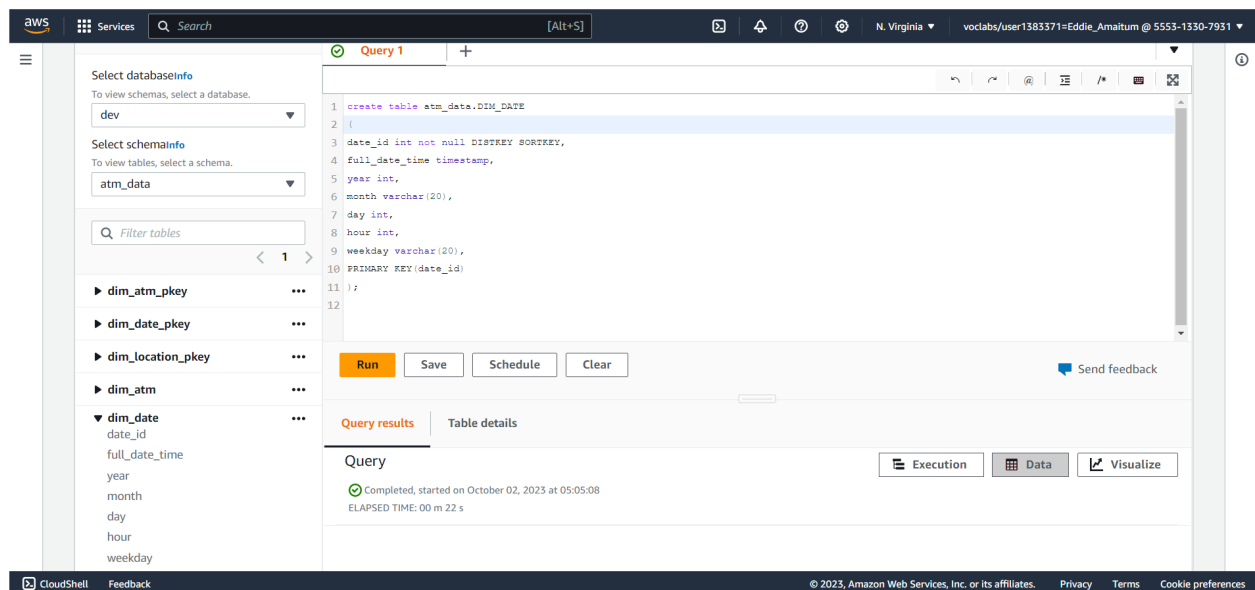
FOREIGN KEY(atm\_location\_id) references atm\_data.DIM\_LOCATION(location\_id)

);



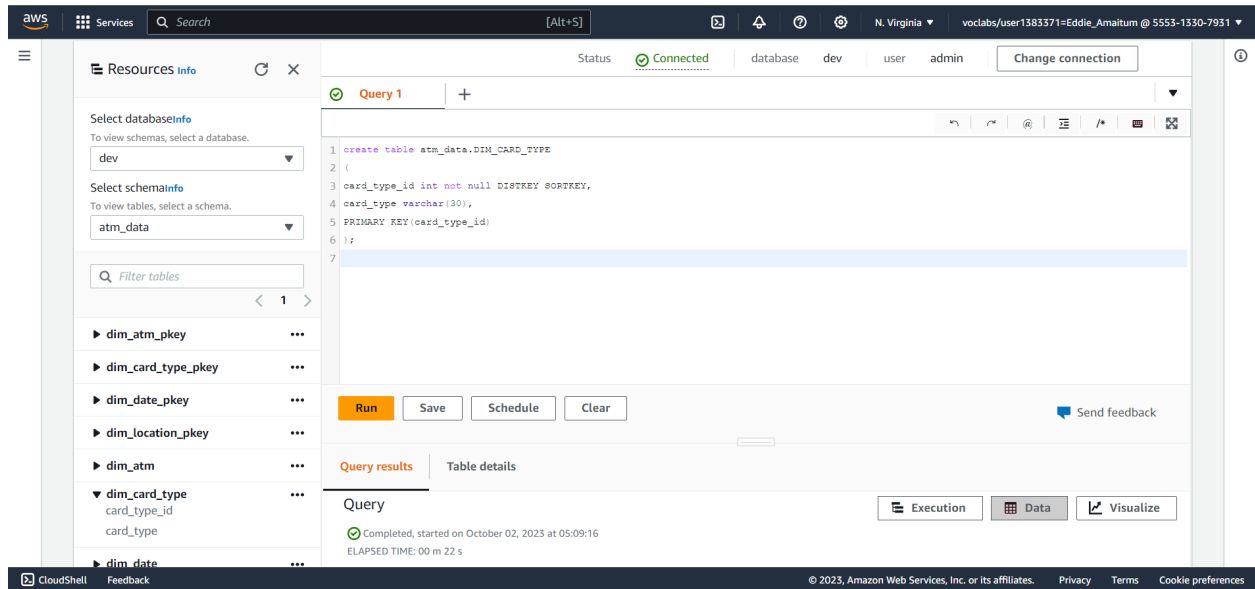
## Query for creating date dimension table:

```
create table atm_data.DIM_DATE
(  
  date_id int not null DISTKEY SORTKEY,  
  full_date_time timestamp,  
  year int,  
  month varchar(20),  
  day int,  
  hour int,  
  weekday varchar(20),  
  PRIMARY KEY(date_id)  
);
```



## Query for creating card type dimension table:

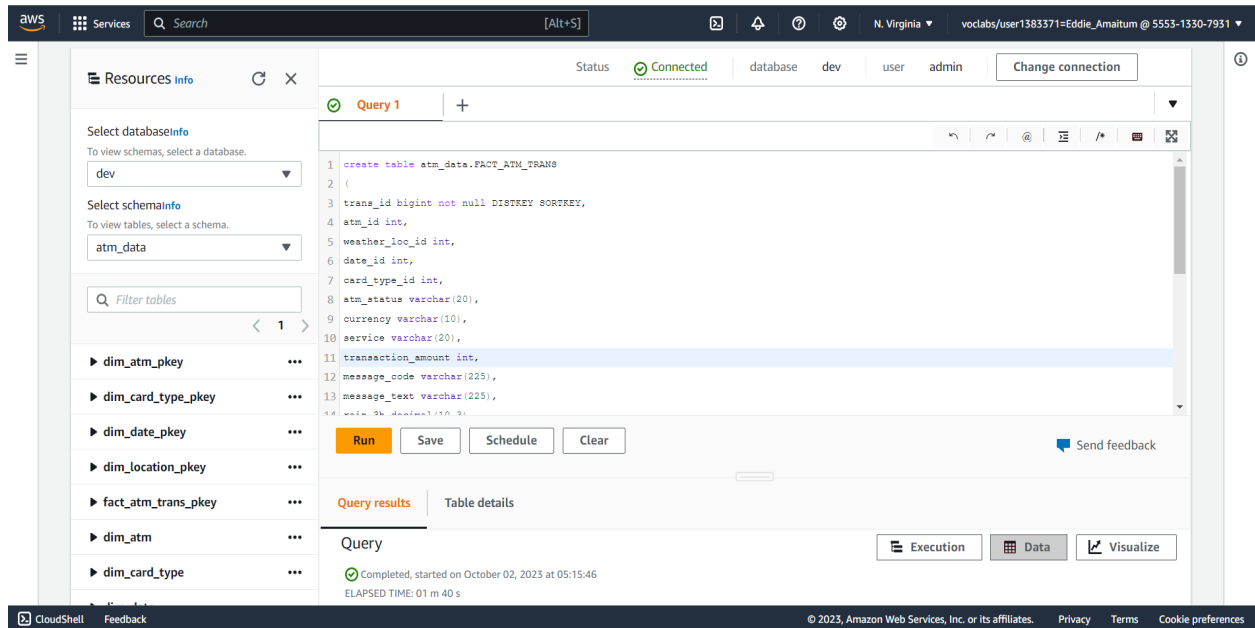
```
create table atm_data.DIM_CARD_TYPE
(  
  card_type_id int not null DISTKEY SORTKEY,  
  card_type varchar(30),  
  PRIMARY KEY(card_type_id)  
);
```



## Query for creating atm transaction fact table:

```
create table atm_data.FACT_ATM_TRANS
(
  trans_id bigint not null DISTKEY SORTKEY,
  atm_id int,
  weather_loc_id int,
  date_id int,
  card_type_id int,
  atm_status varchar(20),
  currency varchar(10),
  service varchar(20),
  transaction_amount int,
  message_code varchar(225),
  message_text varchar(225),
  rain_3h decimal(10,3),
  clouds_all int,
  weather_id int,
  weather_main varchar(50),
  weather_description varchar(255),
  PRIMARY KEY(trans_id),
  FOREIGN KEY(weather_loc_id) references atm_data.DIM_LOCATION(location_id),
  FOREIGN KEY(atm_id) references atm_data.DIM_ATM(atm_id),
  FOREIGN KEY(date_id) references atm_data.DIM_DATE(date_id),
```

FOREIGN KEY(card\_type\_id) references atm\_data.DIM\_CARD\_TYPE(card\_type\_id)  
);

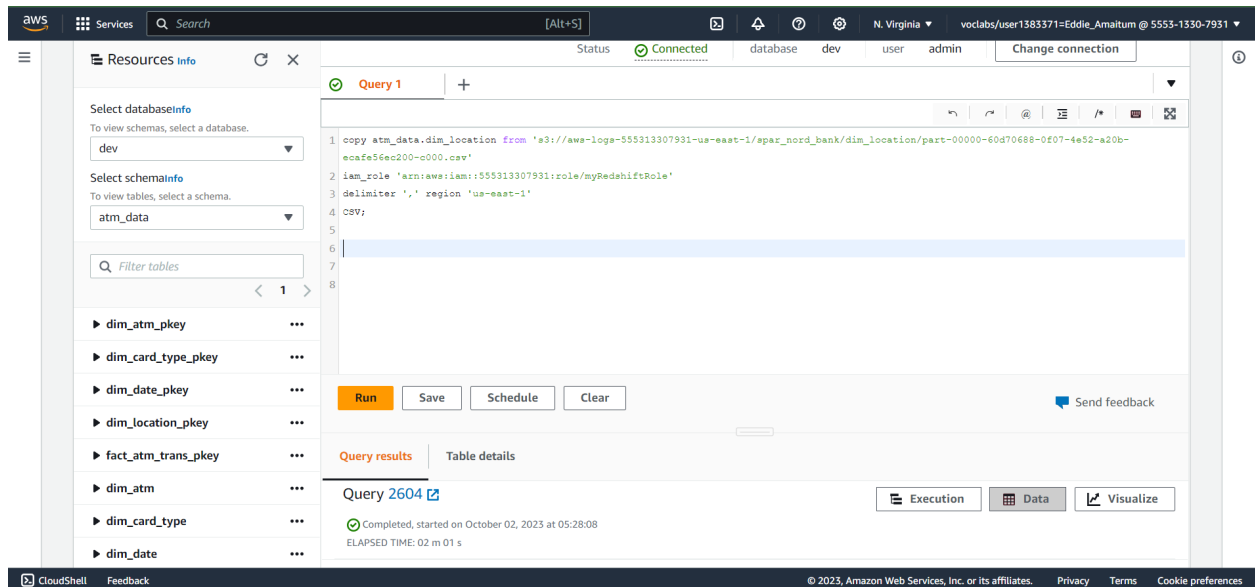


## Loading data into a Redshift cluster from Amazon S3 bucket

Queries to copy the data from S3 buckets to the Redshift cluster in the appropriate tables

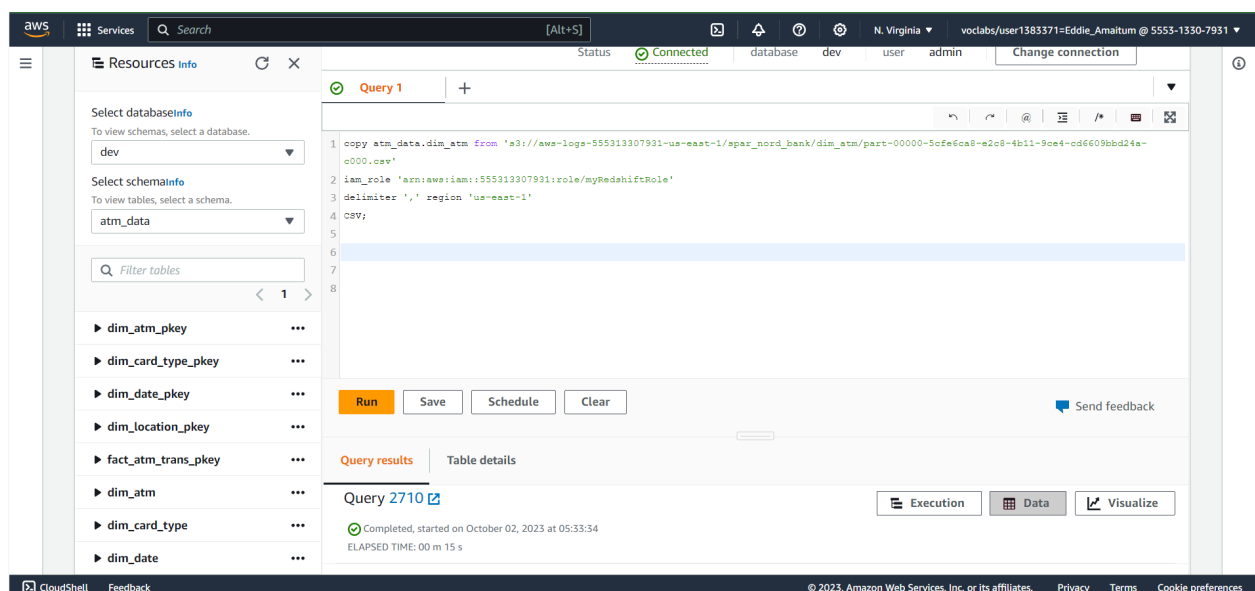
Query for copying data to dim\_location table:

```
copy atm_data.dim_location from
's3://aws-logs-555313307931-us-east-1/spar_nord_bank/dim_location/part-00000-60d70688-0f07-4e52-a20b-ecafe56ec200-c000.csv'
iam_role 'arn:aws:iam::555313307931:role/myRedshiftRole'
delimiter ',' region 'us-east-1'
CSV;
```



## Query for copying data to dim\_atm table:

copy atm\_data.dim\_atm from  
 's3://aws-logs-555313307931-us-east-1/spar\_nord\_bank/dim\_atm/part-00000-5cfe6ca8-e2c8-4b11-9ce4-cd6609bbd24a-c000.csv'  
 iam\_role 'arn:aws:iam::555313307931:role/myRedshiftRole'  
 delimiter ',' region 'us-east-1'  
 CSV;





## Query for copying data to dim\_date table:

copy atm\_data.dim\_date from

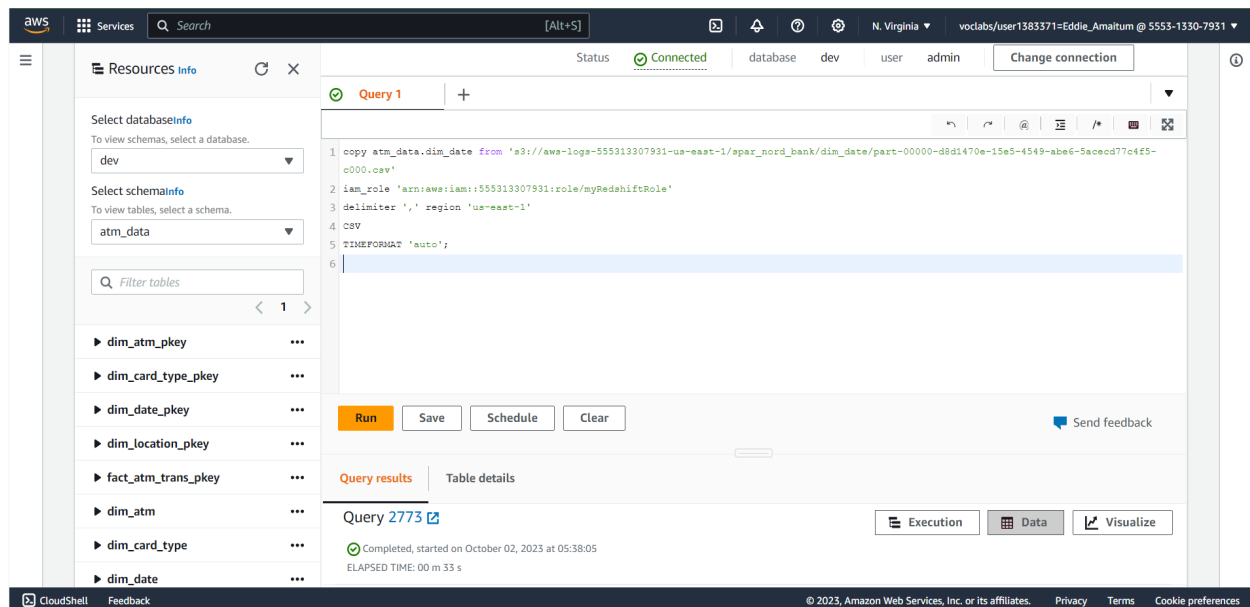
's3://aws-logs-555313307931-us-east-1/spar\_nord\_bank/dim\_date/part-00000-d8d1470e-15e5-4549-abe6-5acecd77c4f5-c000.csv'

iam\_role 'arn:aws:iam::555313307931:role/myRedshiftRole'

delimiter ',' region 'us-east-1'

CSV

TIMEFORMAT 'auto';



## Query for copying data to dim\_card\_type table:

copy atm\_data.dim\_card\_type from

's3://aws-logs-555313307931-us-east-1/spar\_nord\_bank/dim\_card\_type/part-00000-c99d5df3-d001-4c02-b9ae-b1be8b43e232-c000.csv'

iam\_role 'arn:aws:iam::555313307931:role/myRedshiftRole'

delimiter ',' region 'us-east-1'

CSV;

The screenshot shows the AWS Redshift console interface. On the left, the 'Resources' panel is open, showing the 'dev' database and 'atm\_data' schema. A list of tables is visible, including 'dim\_atm\_pkey', 'dim\_card\_type\_pkey', 'dim\_date\_pkey', 'dim\_location\_pkey', 'fact\_atm\_trans\_pkey', 'dim\_atm', 'dim\_card\_type', and 'dim\_date'. The main panel displays 'Query 1' with the following SQL code:

```
1 copy atm_data.dim_card_type from 's3://aws-logs-555313307931-us-east-1/spar_nord_bank/dim_card_type/part-00000-c99d5df3-d001-4c02-b9ae-b1be8b43e232-c000.csv'
2 iam_role 'arn:aws:iam::555313307931:role/myRedshiftRole'
3 delimiter ',' region 'us-east-1'
4 CSV;
5
```

Below the query, there are buttons for 'Run', 'Save', 'Schedule', and 'Clear'. The 'Query results' tab is selected, showing 'Query 2825' with a status of 'Completed, started on October 02, 2023 at 05:41:28' and 'ELAPSED TIME: 00 m 13 s'. The bottom of the console shows the AWS logo, 'CloudShell', 'Feedback', and copyright information for Amazon Web Services, Inc.

## Query for copying data to fact\_atm\_trans table:

copy atm\_data.fact\_atm\_trans from

's3://aws-logs-555313307931-us-east-1/spar\_nord\_bank/fact\_atm\_trans/part-0000  
o-7eb3fb69-77aa-4fa5-8702-c05b7d236790-c000.csv'

iam\_role 'arn:aws:iam::555313307931:role/myRedshiftRole'

delimiter ',' region 'us-east-1'

CSV;

The screenshot shows the AWS Redshift console interface. On the left, the 'Resources' panel is open, showing the 'dev' database and 'atm\_data' schema. A list of tables is visible, including 'dim\_atm\_pkey', 'dim\_card\_type\_pkey', 'dim\_date\_pkey', 'dim\_location\_pkey', 'fact\_atm\_trans\_pkey', 'dim\_atm', 'dim\_card\_type', and 'dim\_date'. The main panel displays 'Query 1' with the following SQL code:

```
1 copy atm_data.fact_atm_trans from 's3://aws-logs-555313307931-us-east-1/spar_nord_bank/fact_atm_trans/part-00000-7eb3fb69-77aa-4fa5-8702-c05b7d236790-c000.csv'
2 iam_role 'arn:aws:iam::555313307931:role/myRedshiftRole'
3 delimiter ',' region 'us-east-1'
4 CSV;
5
```

Below the query, there are buttons for 'Run', 'Save', 'Schedule', and 'Clear'. The 'Query results' tab is selected, showing 'Query 2870' with a status of 'Completed, started on October 02, 2023 at 05:44:49' and 'ELAPSED TIME: 00 m 19 s'. The bottom of the console shows the AWS logo, 'CloudShell', 'Feedback', and copyright information for Amazon Web Services, Inc.