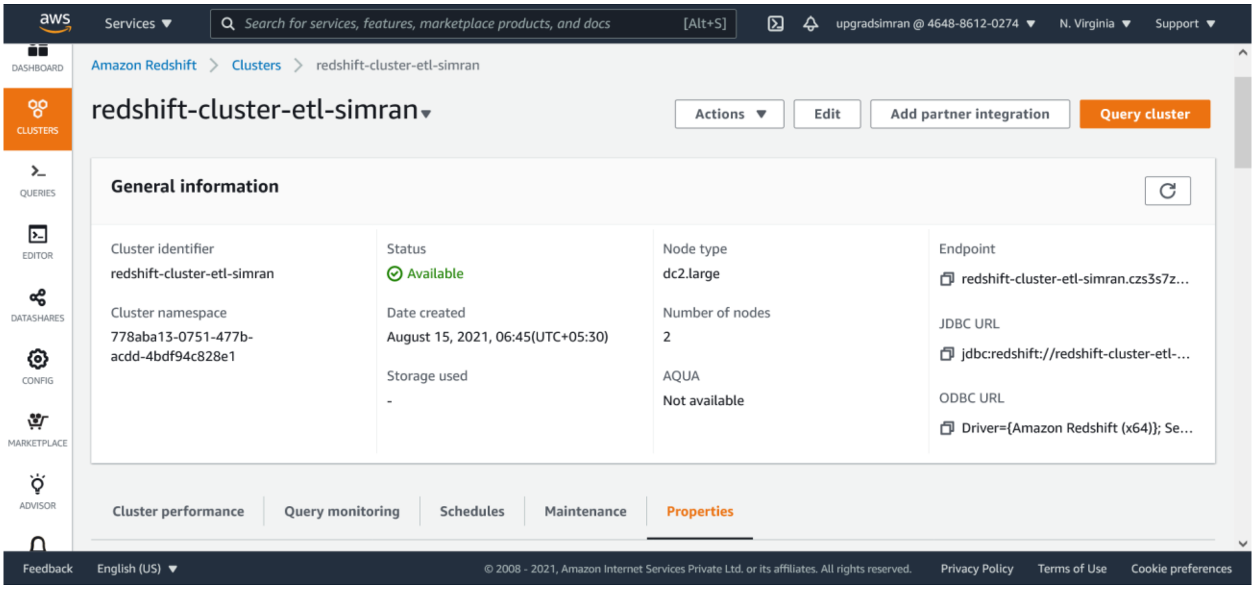
Creation of a RedShift Cluster

Screenshots of the configuration of the RedShift cluster that I have created:

Screenshot of the type of machine used along with number of nodes:



redshift-cluster-etl-simran

General information

Cluster identifier: redshift-cluster-etl-simran

Cluster namespace: 778aba13-0751-477b-acdd-4bdf94c828e1

Status: Available

Date created: August 15, 2021, 06:45(UTC+05:30)

Storage used: -

Node type: dc2.large

Number of nodes: 2

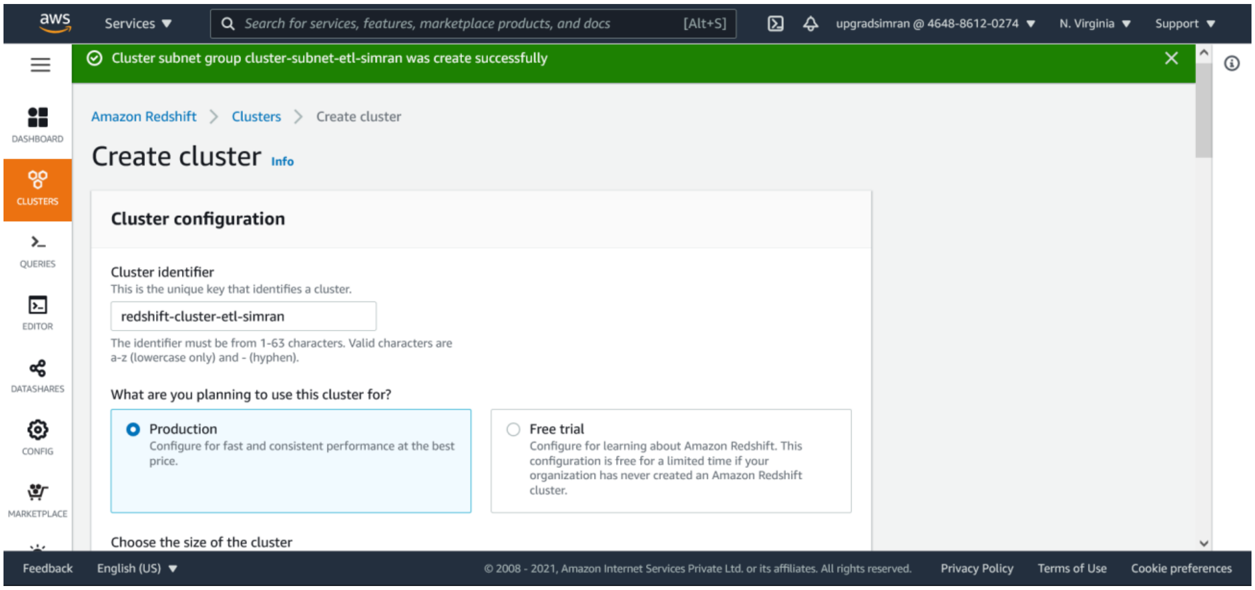
AQUA: Not available

Endpoint: redshift-cluster-etl-simran.czs3s7z...

JDBC URL: jdbc:redshift://redshift-cluster-etl-...

ODBC URL: Driver={Amazon Redshift (x64)}; Se...

Screenshots of the various configurations associated with cluster creation:


aws
Services ▼
Search for services, features, marketplace products, and docs [Alt+S]
upgradsimran @ 4648-8612-0274 ▼
N. Virginia ▼
Support ▼
DASHBOARD
CLUSTERS
QUERIES
EDITOR
DATASHARES
CONFIG
MARKETPLACE
Amazon Redshift > Clusters > Create cluster
Info
Feedback
English (US) ▼
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Cluster subnet group cluster-subnet-etl-simran was create successfully

Create cluster

Cluster configuration

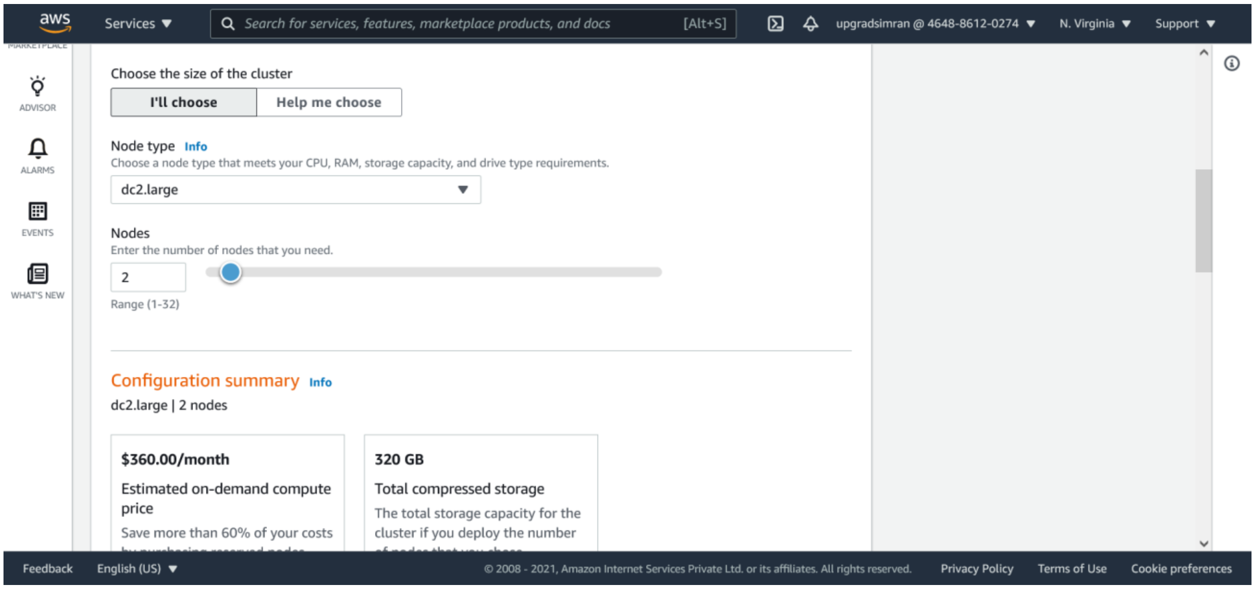
Cluster identifier
This is the unique key that identifies a cluster.
redshift-cluster-etl-simran
The identifier must be from 1-63 characters. Valid characters are a-z (lowercase only) and - (hyphen).

What are you planning to use this cluster for?

● Production
Configure for fast and consistent performance at the best price.

○ Free trial
Configure for learning about Amazon Redshift. This configuration is free for a limited time if your organization has never created an Amazon Redshift cluster.

Choose the size of the cluster


aws
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ADVISOR
ALARMS
EVENTS
WHAT'S NEW

Choose the size of the cluster

I'll choose | Help me choose

Node type Info

Choose a node type that meets your CPU, RAM, storage capacity, and drive type requirements.

dc2.large ▼

Nodes

Enter the number of nodes that you need.

2

Range (1-32)

Configuration summary Info

dc2.large | 2 nodes

$360.00/month

Estimated on-demand compute price

Save more than 60% of your costs

320 GB

Total compressed storage

The total storage capacity for the cluster if you deploy the number

Feedback
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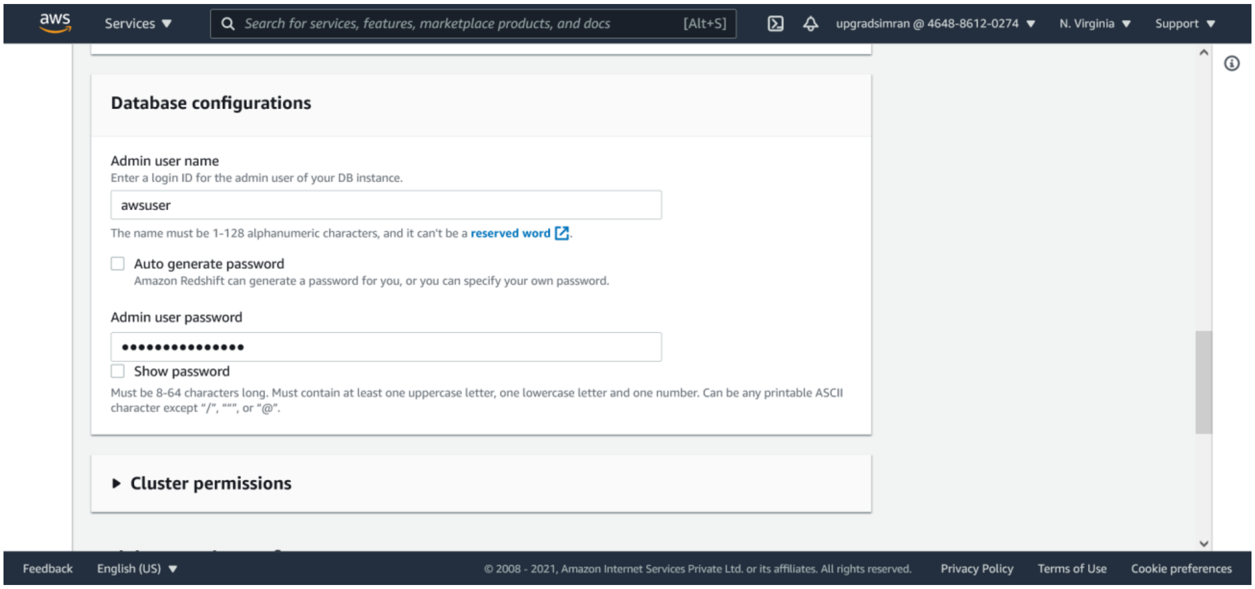

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Feedback
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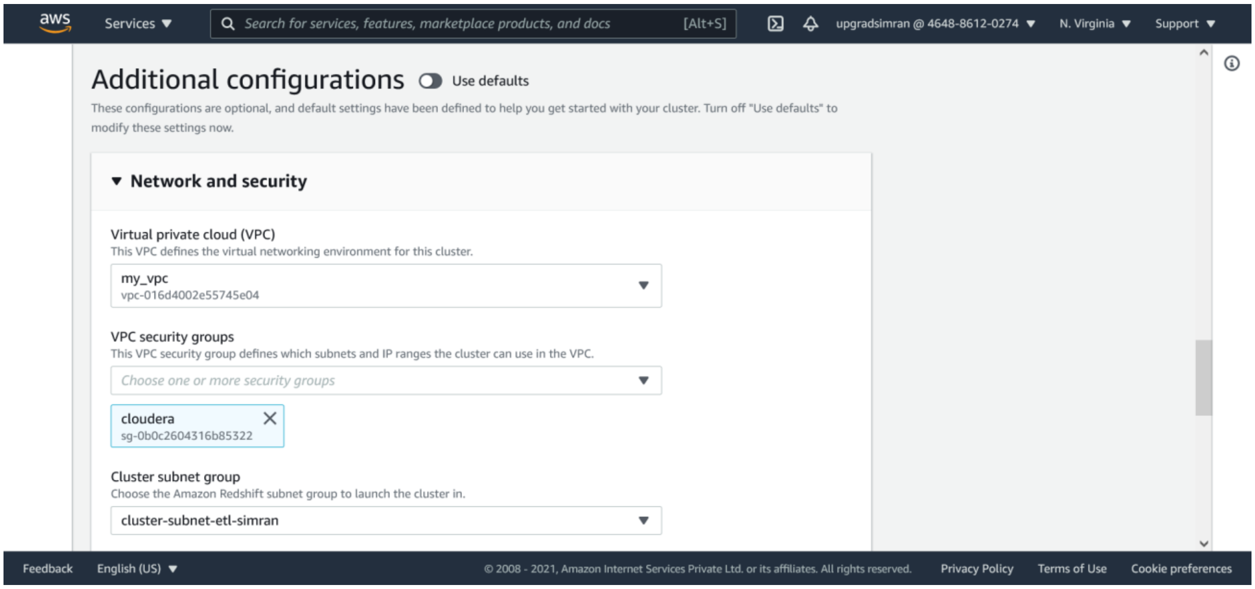
Database configurations

Admin user name
Enter a login ID for the admin user of your DB instance.
awsuser
The name must be 1-128 alphanumeric characters, and it can't be a reserved word.

□ Auto generate password
Amazon Redshift can generate a password for you, or you can specify your own password.

Admin user password
•••••••••••••••
□ Show password
Must be 8-64 characters long. Must contain at least one uppercase letter, one lowercase letter and one number. Can be any printable ASCII character except "/", """, or "@".

▶ Cluster permissions



aws
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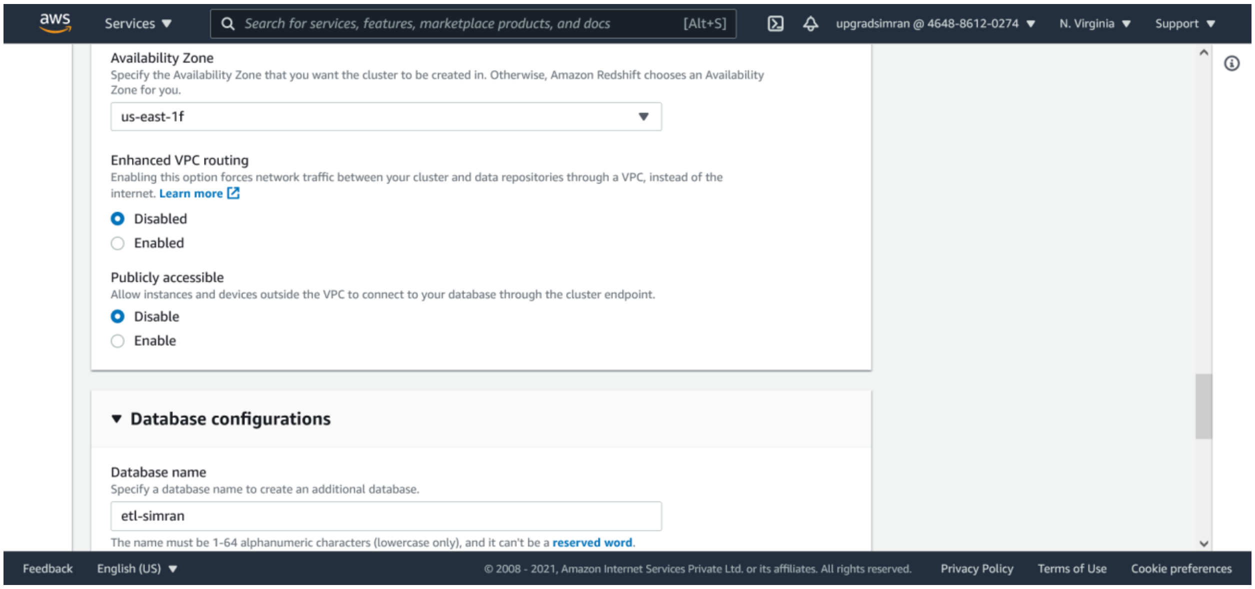
Additional configurations ○ Use defaults
These configurations are optional, and default settings have been defined to help you get started with your cluster. Turn off "Use defaults" to modify these settings now.

▼ Network and security

Virtual private cloud (VPC)
This VPC defines the virtual networking environment for this cluster.
my_vpc
vpc-016d4002e55745e04

VPC security groups
This VPC security group defines which subnets and IP ranges the cluster can use in the VPC.
Choose one or more security groups
cloudera ✕
sg-0b0c2604316b85322

Cluster subnet group
Choose the Amazon Redshift subnet group to launch the cluster in.
cluster-subnet-etl-simran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Availability Zone
Specify the Availability Zone that you want the cluster to be created in. Otherwise, Amazon Redshift chooses an Availability Zone for you.

us-east-1f ▼

Enhanced VPC routing
Enabling this option forces network traffic between your cluster and data repositories through a VPC, instead of the internet. Learn more

● Disabled
○ Enabled

Publicly accessible
Allow instances and devices outside the VPC to connect to your database through the cluster endpoint.

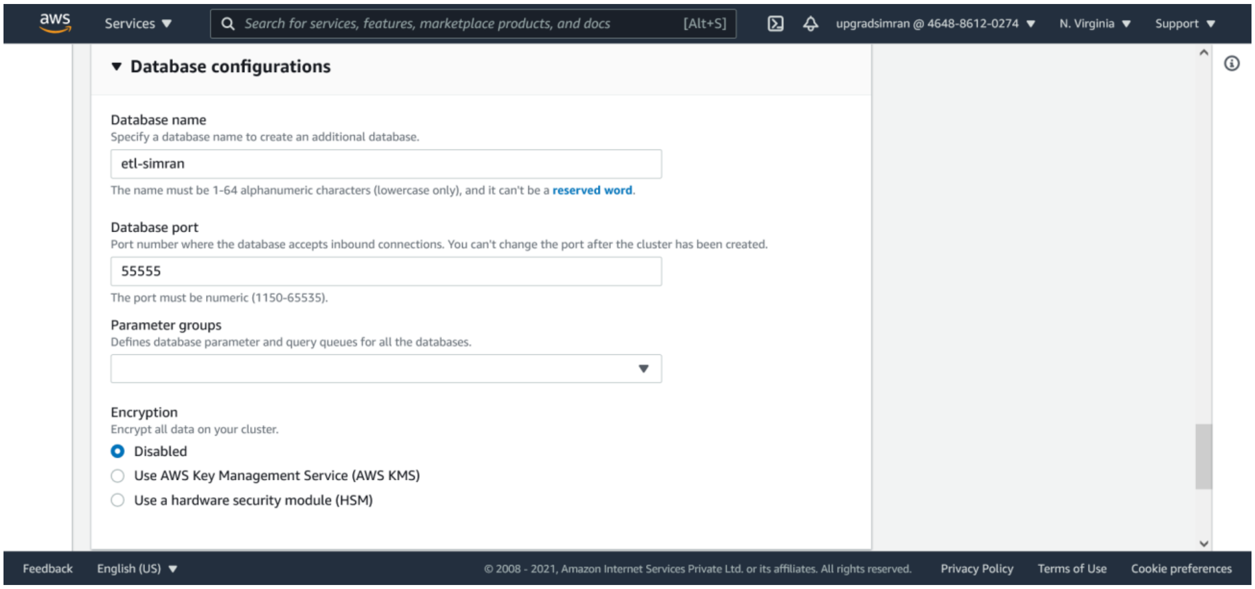
● Disable
○ Enable

▼ Database configurations

Database name
Specify a database name to create an additional database.

etl-simran

The name must be 1-64 alphanumeric characters (lowercase only), and it can't be a **reserved word**.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▼ Database configurations

Database name
Specify a database name to create an additional database.

etl-simran

The name must be 1-64 alphanumeric characters (lowercase only), and it can't be a **reserved word**.

Database port
Port number where the database accepts inbound connections. You can't change the port after the cluster has been created.

55555

The port must be numeric (1150-65535).

Parameter groups
Defines database parameter and query queues for all the databases.

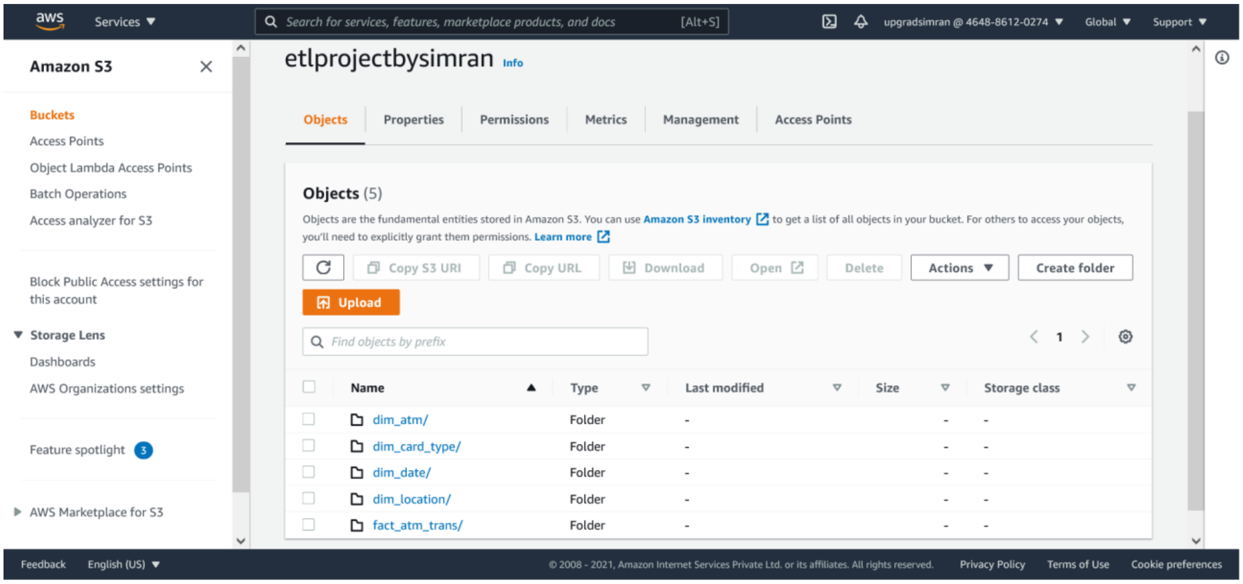
▼

Encryption
Encrypt all data on your cluster.

● Disabled
○ Use AWS Key Management Service (AWS KMS)
○ Use a hardware security module (HSM)

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

Viewing all the data in Amazon S3 bucket:



etlprojectbysimran Info

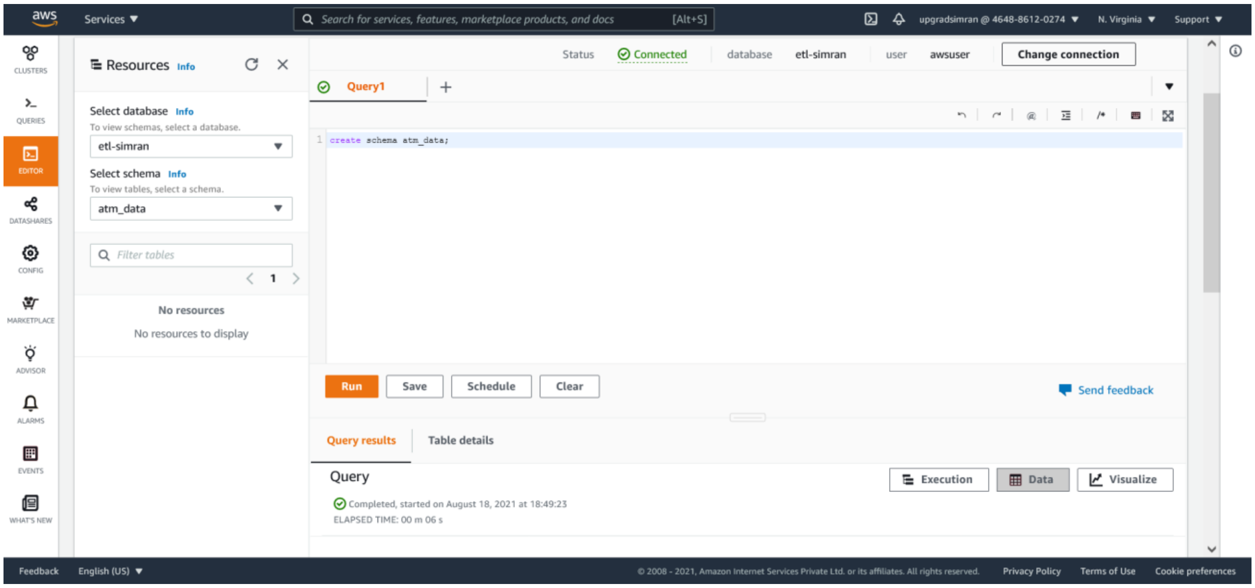
Objects (5)

Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

Name	Type	Last modified	Size	Storage class
dim_atm/	Folder	-	-	-
dim_card_type/	Folder	-	-	-
dim_date/	Folder	-	-	-
dim_location/	Folder	-	-	-
fact_atm_trans/	Folder	-	-	-

Query to create a schema for the dimension and fact tables:

create schema atm_data;



Status Connected database etl-simran user awsuser

Select database Info
To view schemas, select a database.
etl-simran

Select schema Info
To view tables, select a schema.
atm_data

Filter tables

No resources
No resources to display

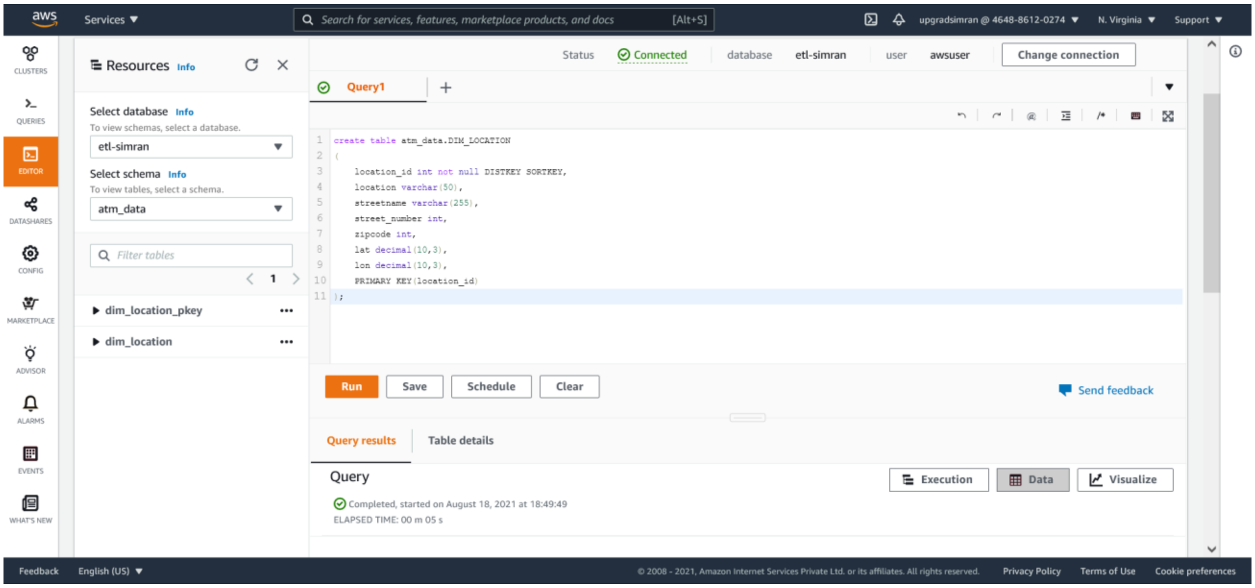
```
create schema atm_data;
```

Query
Completed, started on August 18, 2021 at 18:49:23
ELAPSED TIME: 00 m 06 s

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

- **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)
);
```



Status ✓ Connected database etl-simran user awsuser

Select database Info
To view schemas, select a database.
etl-simran

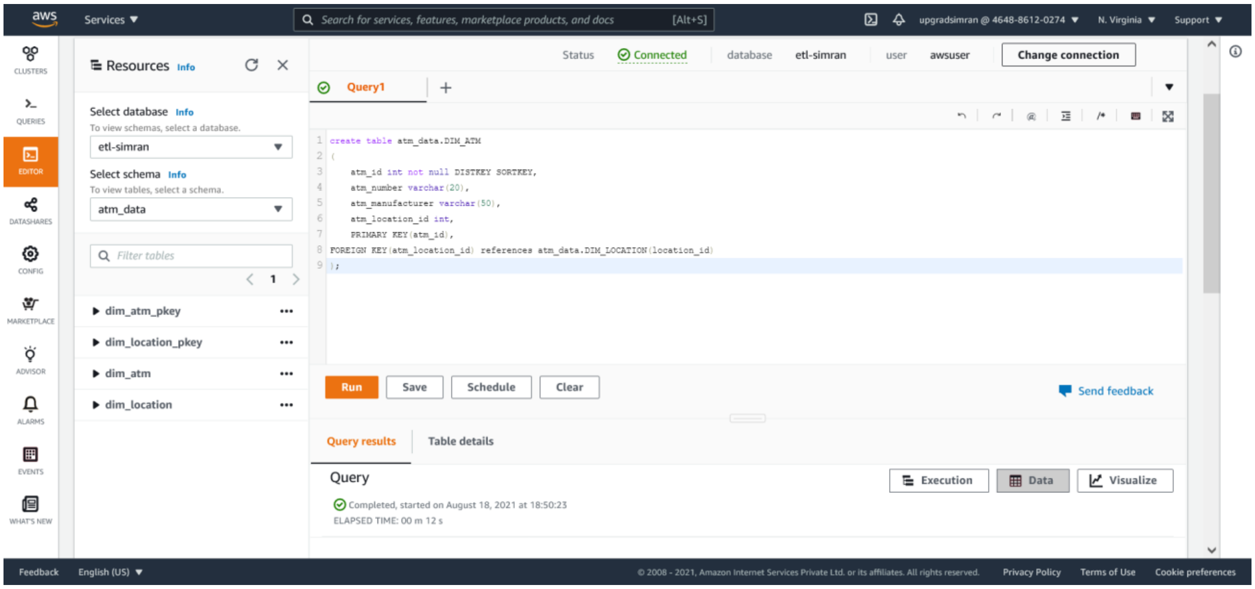
Select schema Info
To view tables, select a schema.
atm_data

```
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
✓ Completed, started on August 18, 2021 at 18:49:49
ELAPSED TIME: 00 m 05 s

- **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)
);
```



Status: Connected | database: etl-simran | user: awsuser

Select database: etl-simran

Select schema: atm_data

```
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

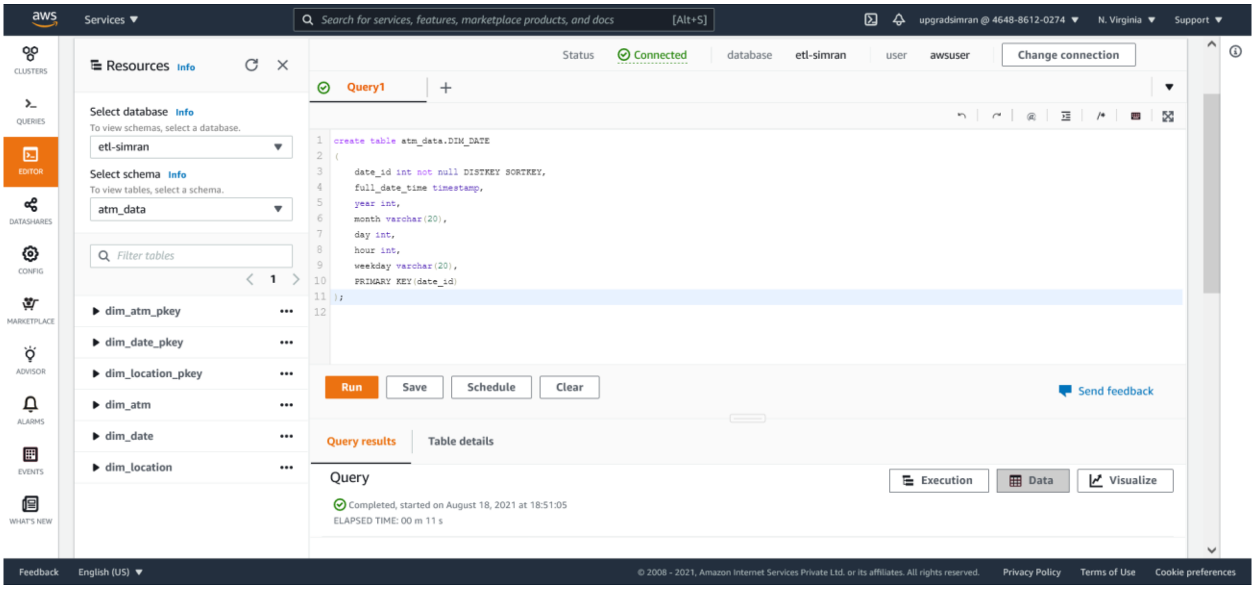
Completed, started on August 18, 2021 at 18:50:23

ELAPSED TIME: 00 m 12 s

- **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)

);
```



Status: Connected | database: etl-simran | user: awsuser

Select database: etl-simran

Select schema: atm_data

```
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)
);
```

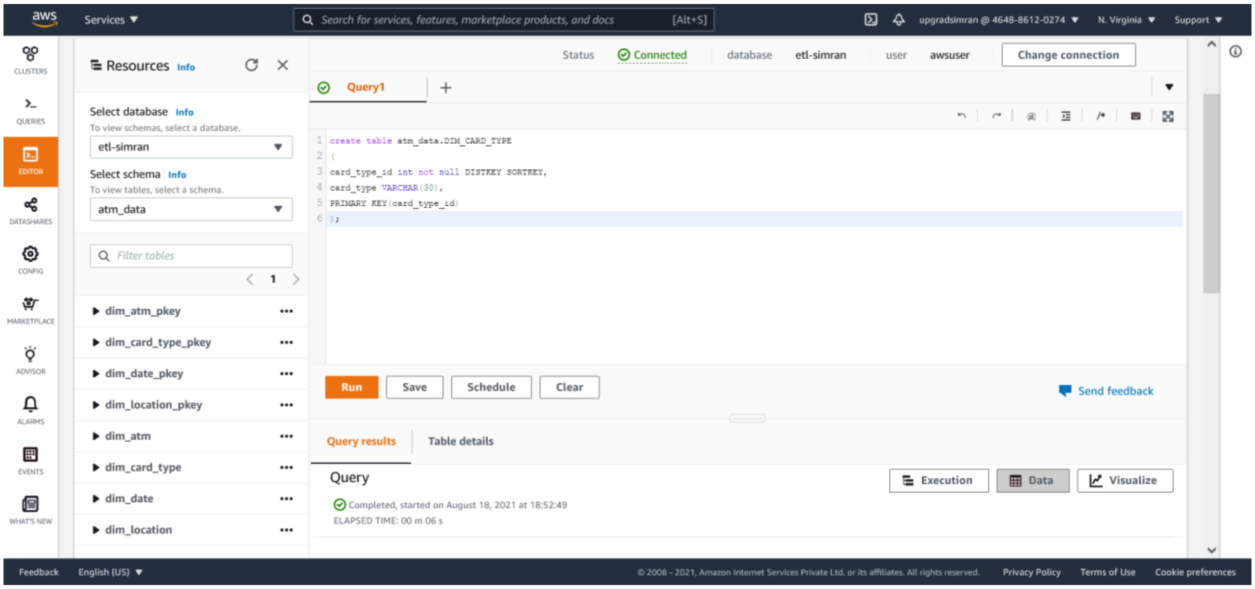
Query

Completed, started on August 18, 2021 at 18:51:05

ELAPSED TIME: 00 m 11 s

- **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)
);



Status: Connected | database: etl-simran | user: awsuser

Select database: etl-simran

Select schema: atm_data

```
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

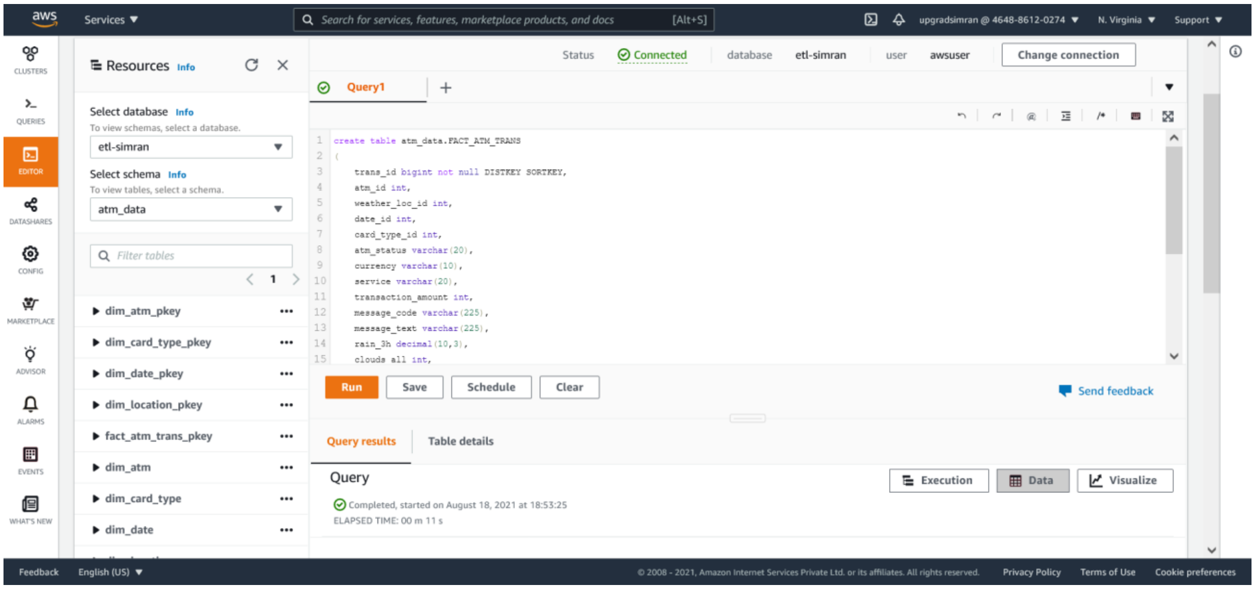
Completed, started on August 18, 2021 at 18:52:49

ELAPSED TIME: 00 m 06 s

- **Creating atm transactions 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_DATA(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)
);
```



Status: ✓ Connected | database: etl-simran | user: awsuser

Select database: etl-simran

Select schema: atm_data

▶ dim_atm_pkey •••

▶ dim_card_type_pkey •••

▶ dim_date_pkey •••

▶ dim_location_pkey •••

▶ fact_atm_trans_pkey •••

▶ dim_atm •••

▶ dim_card_type •••

▶ dim_date •••

```
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,
```

Query

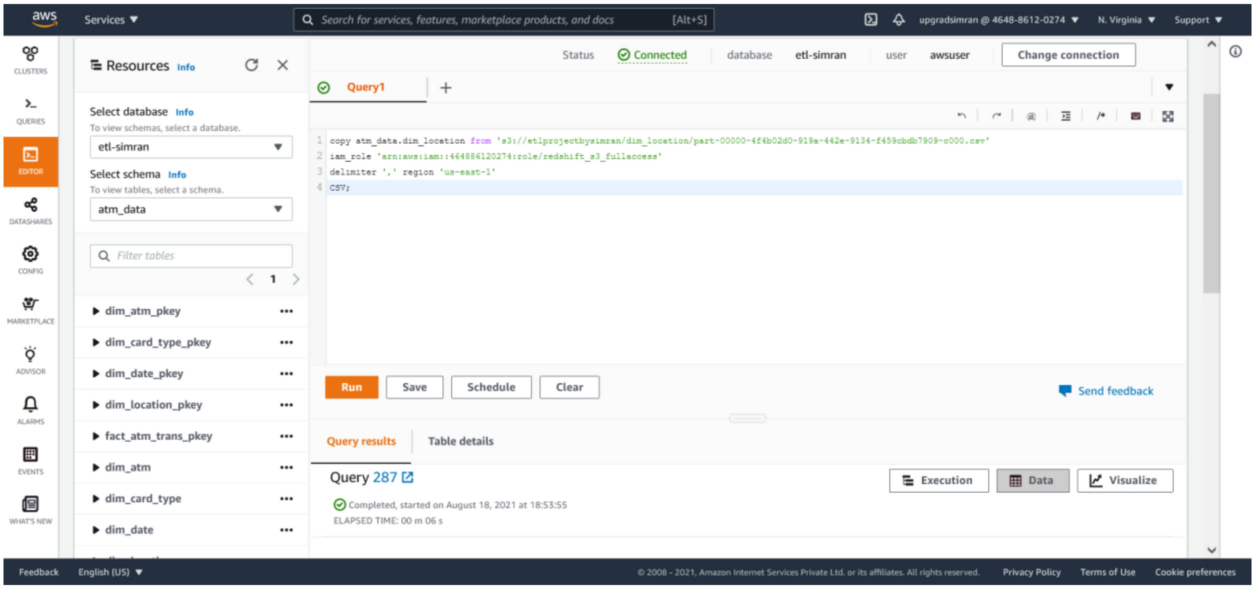
✓ Completed, started on August 18, 2021 at 18:53:25
ELAPSED TIME: 00 m 11 s

Loading data into a RedShift cluster from Amazon S3 bucket

Queries to copy the data from S3 bucket to the RedShift cluster in the appropriate tables:

- **Copying the data to dim_location table**

copy atm_data.dim_location from 's3://etlprojectbysimran/dim_location/part-00000-4f4b02d0-919a-442e-9134-f459cbdb7909-c000.csv'
iam_role 'arn:aws:iam::464886120274:role/redshift_s3_fullaccess'
delimiter ',' region 'us-east-1'
CSV;



```
copy atm_data.dim_location from 's3://etlprojectbysimran/dim_location/part-00000-4f4b02d0-919a-442e-9134-f459cbdb7909-c000.csv'
iam_role 'arn:aws:iam::464886120274:role/redshift_s3_fullaccess'
delimiter ',' region 'us-east-1'
CSV;
```

Status: Connected | database: etl-simran | user: awsuser

Select database: etl-simran

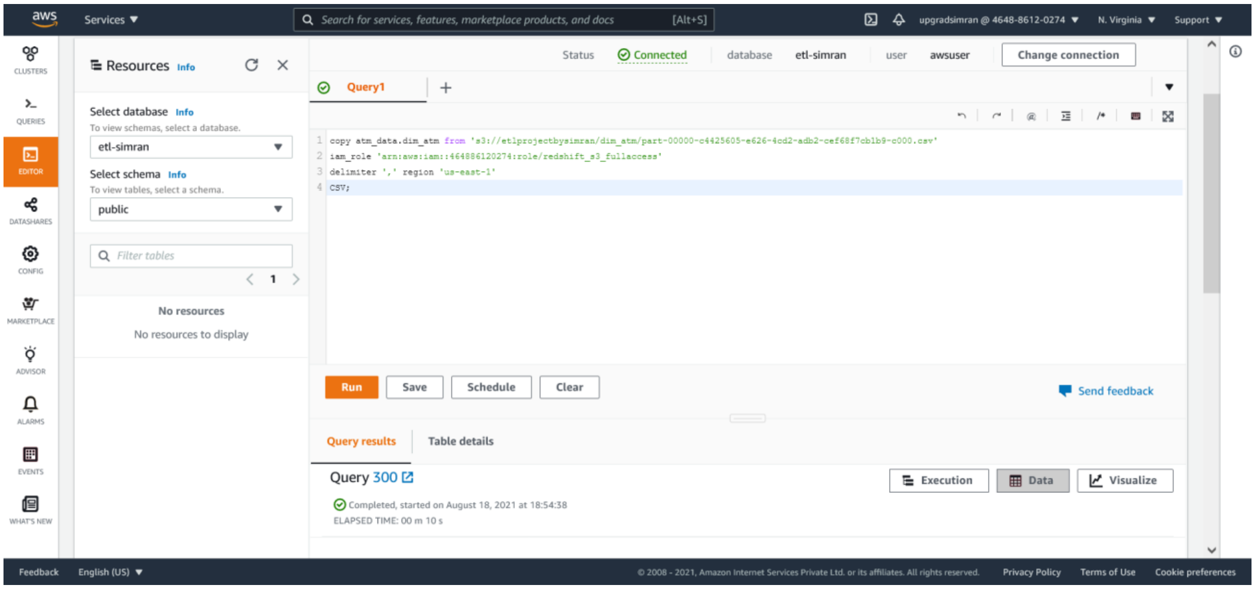
Select schema: atm_data

Query 287

Completed, started on August 18, 2021 at 18:53:55
ELAPSED TIME: 00 m 06 s

- **Copying the data to dim_atm table**

copy atm_data.dim_atm from ' s3://etlprojectbysimran/dim_atm/part-00000-c4425605-e626-4cd2-adb2-cef68f7cb1b9-c000.csv'
iam_role 'arn:aws:iam::464886120274:role/redshift_s3_fullaccess'
delimiter ',' region 'us-east-1'
CSV;

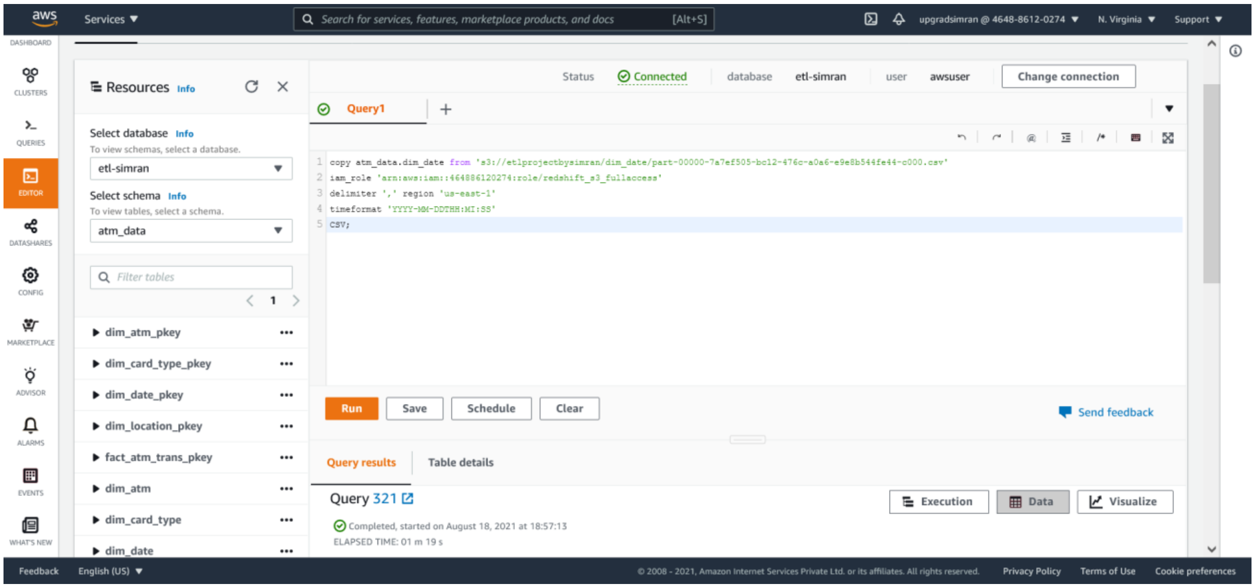


```
copy atm_data.dim_atm from 's3://etlprojectbysimran/dim_atm/part-00000-c4425605-e626-4cd2-adb2-cef68f7cb1b9-c000.csv'
iam_role 'arn:aws:iam::464886120274:role/redshift_s3_fullaccess'
delimiter ',' region 'us-east-1'
CSV;
```

Query 300
Completed, started on August 18, 2021 at 18:54:38
ELAPSED TIME: 00 m 10 s

- **Copying the data to dim_date table**

copy atm_data.dim_date from ' s3://etlprojectbysimran/dim_date/part-00000-7a7ef505-bc12-476c-a0a6-e9e8b544fe44-c000.csv'
iam_role 'arn:aws:iam::464886120274:role/redshift_s3_fullaccess'
delimiter ',' region 'us-east-1'
CSV;



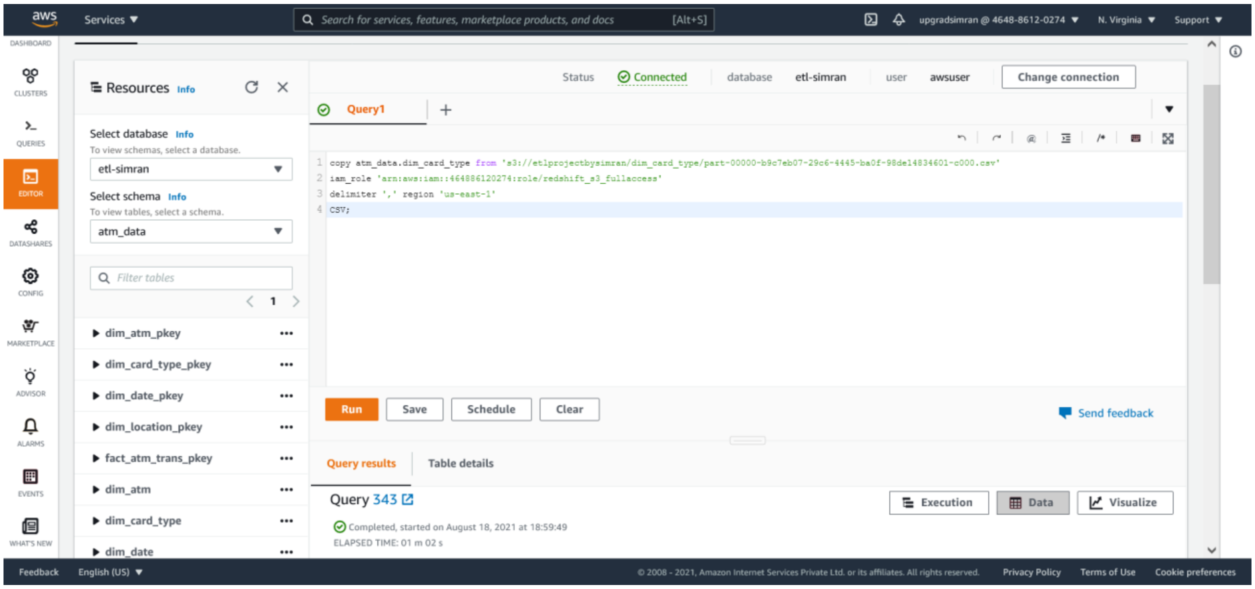
```
copy atm_data.dim_date from 's3://etlprojectbysimran/dim_date/part-00000-7a7ef505-bc12-476c-a0a6-e9e8b544fe44-c000.csv'
iam_role 'arn:aws:iam::464886120274:role/redshift_s3_fullaccess'
delimiter ',' region 'us-east-1'
timeformat 'YYYY-MM-DDTHH:MI:SS'
CSV;
```

Query 321
Completed, started on August 18, 2021 at 18:57:13
ELAPSED TIME: 01 m 19 s

- **Copying the data to dim_card_type table**

copy atm_data.dim_card_type from ' s3://etlprojectbysimran/dim_card_type/part-00000-b9c7eb07-29c6-4445-ba0f-98de14834601-c000.csv'

iam_role 'arn:aws:iam::464886120274:role/redshift_s3_fullaccess'
delimiter ',' region 'us-east-1'
CSV;



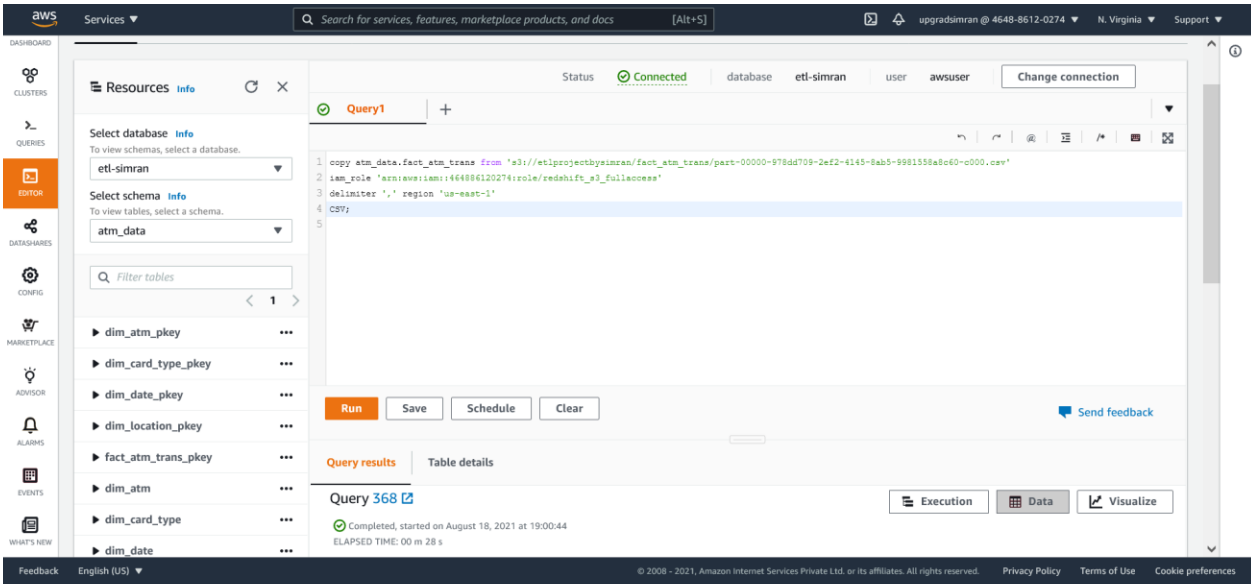
```
copy atm_data.dim_card_type from 's3://etlprojectbysimran/dim_card_type/part-00000-b9c7eb07-29c6-4445-ba0f-98de14834601-c000.csv'
iam_role 'arn:aws:iam::464886120274:role/redshift_s3_fullaccess'
delimiter ',' region 'us-east-1'
CSV;
```

Query 343

Completed, started on August 18, 2021 at 18:59:49
ELAPSED TIME: 01 m 02 s

- **Copying the data to fact_atm_trans table**

copy atm_data.fact_atm_trans from ' s3://etlprojectbysimran/fact_atm_trans/part-00000-978dd709-2ef2-4145-8ab5-9981558a8c60-c000.csv'
iam_role 'arn:aws:iam::464886120274:role/redshift_s3_fullaccess'
delimiter ',' region 'us-east-1'
CSV;



```
copy atm_data.fact_atm_trans from 's3://etlprojectbysimran/fact_atm_trans/part-00000-978dd709-2ef2-4145-8ab5-9981558a8c60-c000.csv'
iam_role 'arn:aws:iam::464886120274:role/redshift_s3_fullaccess'
delimiter ',' region 'us-east-1'
CSV;
```

Query 368

Completed, started on August 18, 2021 at 19:00:44
ELAPSED TIME: 00 m 28 s