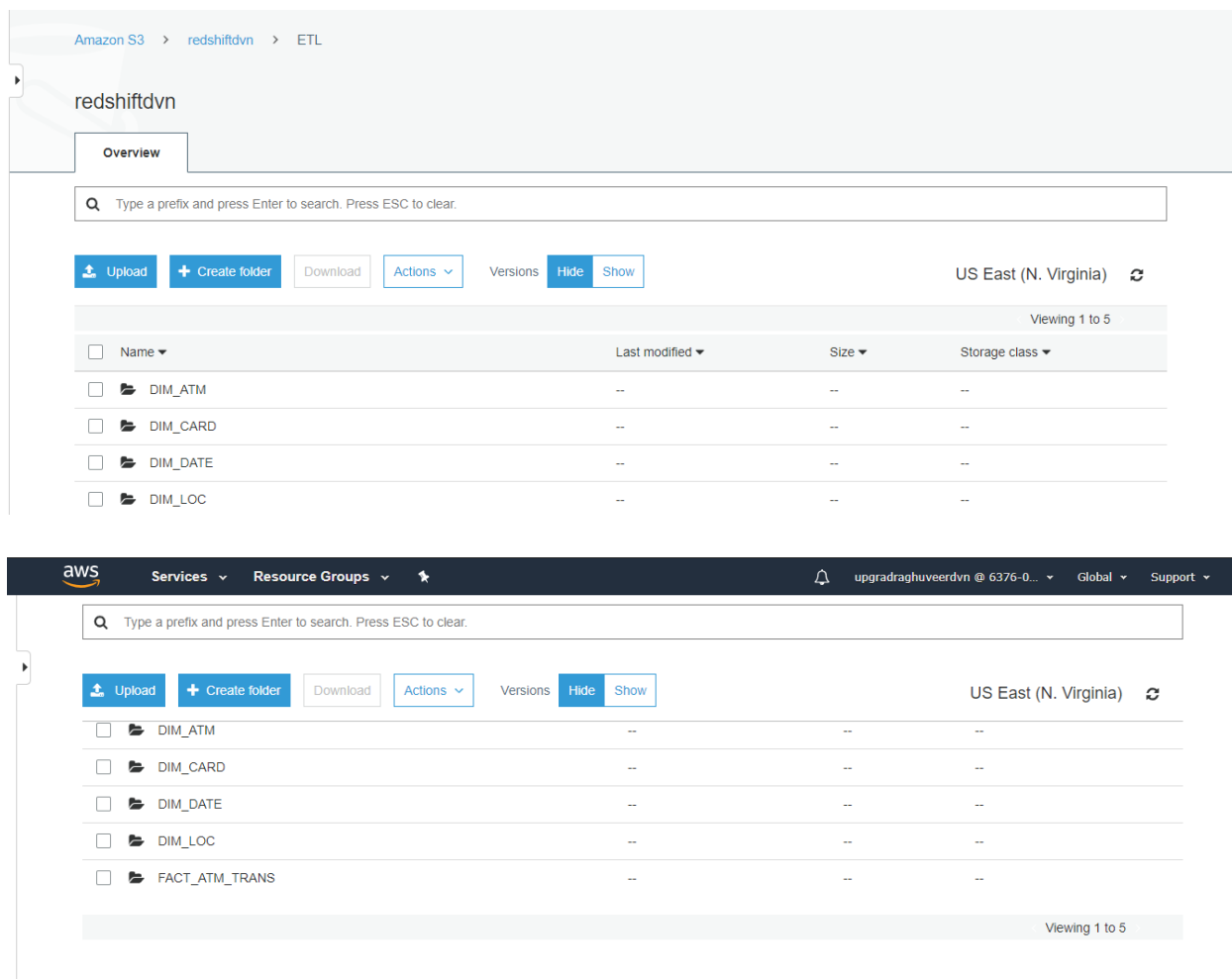


## Solving analytical queries on RedShift Cluster

Screenshot of S3:



Amazon S3 > redshiftdvn > ETL

redshiftdvn

Overview

Search: Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder Download Actions Versions Hide Show US East (N. Virginia)

Viewing 1 to 5

Name	Last modified	Size	Storage class
DIM_ATM	--	--	--
DIM_CARD	--	--	--
DIM_DATE	--	--	--
DIM_LOC	--	--	--

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Search: Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder Download Actions Versions Hide Show US East (N. Virginia)

Name	Last modified	Size	Storage class
DIM_ATM	--	--	--
DIM_CARD	--	--	--
DIM_DATE	--	--	--
DIM_LOC	--	--	--
FACT_ATM_TRANS	--	--	--

Viewing 1 to 5

### 1. Top 10 ATMs where most transactions are in the 'inactive' state

```
SELECT a.atm_id, a.atm_manufacturer, b.atm_location, count(d.trans_id) as transaction_count,
count(d.atm_status)
from etl.atm a, etl.loc b, etl.FACT_ATM_TRANS d
where d.atm_status = 'Inactive'
and d.atm_prim_id = a.atm_prim_id
and b.location_id = d.location_id
group by a.atm_id, a.atm_manufacturer, b.atm_location
order by transaction_count desc
limit 10
```

```

1 SELECT a.atm_id, a.atm_manufacturer, b.atm_location, count(d.trans_id) as transaction_count,
2        count(d.atm_status),
3        from etl.atm a, etl.loc b, etl.FACT_ATM_TRANS d
4        where d.atm_status = 'Inactive'
5        and d.atm_prim_id = a.atm_prim_id
6        and b.location_id = d.location_id
7        group by a.atm_id, a.atm_manufacturer, b.atm_location
8        order by transaction_count desc
9        limit 10

```

aws Services Resource Groups					
upgradraghuveerdvn @ 6376-0... N. Virginia Support					
Search rows					
atm_id	atm_manufacturer	atm_location	transaction_count	count	
16	NCR	Skive	44043	44043	
12	NCR	ÅfËøesterÅfÅ¥ Duus	33982	33982	
2	NCR	Vejgaard	33725	33725	
88	NCR	Storcenter indg. A	32183	32183	
30	NCR	NykÅfÅ, bing Mors	30883	30883	
52	NCR	FarsÅfÅ,	27361	27361	
50	NCR	Aarhus	23416	23416	
29	NCR	Skelagervej 15	20773	20773	
81	NCR	Spar KÅfÅ, bmand TornhÅfÅ, j	20148	20148	
102	NCR	Aalborg Storcenter Afd	18297	18297	

atm_id	atm_manufacturer	atm_location	transaction_count	count
16	NCR	Skive	44043	44043
12	NCR	ÅfËøesterÅfÅ¥ Duus	33982	33982
2	NCR	Vejgaard	33725	33725
88	NCR	Storcenter indg. A	32183	32183
30	NCR	NykÅfÅ, bing Mors	30883	30883
52	NCR	FarsÅfÅ,	27361	27361
50	NCR	Aarhus	23416	23416
29	NCR	Skelagervej 15	20773	20773
81	NCR	Spar KÅfÅ, bmand TornhÅfÅ, j	20148	20148
102	NCR	Aalborg Storcenter Afd	18297	18297

## 2. Number of ATM failures corresponding to the different weather conditions recorded at the time of the transactions

```
select c.weather_main, c.total_transaction_count,
NVL(d.inactive_count::int,0) as total_inactive_count,
round(100.0000*total_inactive_count/c.total_transaction_count,4) as inactive_count_percent
from
(select a.weather_main, count(a.trans_id) as total_transaction_count from
assign_etl.FACT_ATM_TRANS a where a.weather_main != ' ' group by a.weather_main)
c left outer join
(select b.weather_main, count(b.atm_status) as inactive_count from
assign_etl.FACT_ATM_TRANS b where b.atm_status='Inactive' and b.weather_main != ' ' group
by b.weather_main) d
on c.weather_main=d.weather_main
group by c.weather_main,c.total_transaction_count, total_inactive_count
order by inactive_count_percent desc;
```

weather_main	total_transaction_count	total_inactive_count	inactive_count_percent
Snow	23405	4813	20.5640
Fog	18174	3729	20.5183
Clouds	1181901	194027	16.4165
Rain	545135	86017	15.7790
Clear	543949	85531	15.7241
Mist	82801	12864	15.5360
Thunderstorm	2549	361	14.1624
Drizzle	62530	8670	13.8653
TORNADO	38	1	2.6316
Haze	3	0	0.0000

### 3. Top 10 ATMs with the most number of transactions throughout the year

```
SELECT a.atm_id, a.atm_manufacturer, b.atm_location, count(d.trans_id) as transaction_count
from etl.atm a, etl.loc b, etl.FACT_ATM_TRANS d
where d.atm_prim_id = a.atm_prim_id
and b.location_id = d.location_id
group by a.atm_id, a.atm_manufacturer, b.atm_location
order by transaction_count desc
limit 10
```

Query3:

```
SELECT a.atm_id, a.atm_manufacturer, b.atm_location, count(d.trans_id) as transaction_count
from etl.atm a, etl.loc b, etl.FACT_ATM_TRANS d
where d.atm_prim_id = a.atm_prim_id
and b.location_id = d.location_id
group by a.atm_id, a.atm_manufacturer, b.atm_location
order by transaction_count desc
limit 10
```

aws Services Resource Groups upgradraghuveerdvn @ 6376-0... N. Virginia Support

Query 9669 [Execution](#) [Data](#) [Visualize](#)

Completed, started on August 27, 2020 at 23:41:02  
ELAPSED TIME: 00 m 09 s

Rows returned (10) [Export](#)

atm_id	atm_manufacturer	atm_location	transaction_count
39	NCR	Svenstrup	55380
20	NCR	Bispensgade	54211
10	NCR	NÅfÅ, resundby	53794
24	NCR	Hobro	53378
45	NCR	Abildgaard	53198
16	NCR	Skive	44043
40	Diebold Nixdorf	Frederikshavn	43767
1	NCR	NÅfÅstved	42787

atm_id	atm_manufacturer	atm_location	transaction_count
39	NCR	Svenstrup	55380
20	NCR	Bispensgade	54211
10	NCR	NÃfÃ, rresundby	53794
24	NCR	Hobro	53378
45	NCR	Abildgaard	53198
16	NCR	Skive	44043
40	Diebold Nixdorf	Frederikshavn	43767
1	NCR	NÃfÃstved	42787
41	Diebold Nixdorf	Skagen	42732
48	Diebold Nixdorf	BrÃfÃ, nderslev	42493

#### 4. Number of overall ATM transactions going inactive per month for each month

```
select c.year, c.month, c.transaction_count, d.inactive_count,
CAST(trunc(100.0*d.inactive_count/c.transaction_count,2) AS NUMERIC(10,4)) as
inactive_count_percent from
(select a.year, a.month, count(b.trans_id) as transaction_count from etl.date
a,etl.FACT_ATM_TRANS b where a.date_id = b.date_id group by a.month, a.year) c left join
(select a.year, a.month, count(b.atm_status) as inactive_count from assign_etl.date
a,assign_etl.FACT_ATM_TRANS b where a.date_id = b.date_id and b.atm_status='Inactive'
group by a.month, a.year) d
on c.year=d.year and c.month=d.month
order by c.year, c.month;
```

year_ ▼	month ▼	trans_count ▼	inactive_count ▼	inactive_count_percent ▼
2017	April	218865	41830	19.1100
2017	August	217218	36713	16.9000
2017	December	197048	20476	10.3900
2017	February	182659	36656	20.0600
2017	January	180195	35953	19.9500
2017	July	227682	38139	16.7500
2017	June	225166	36789	16.3300
2017	March	209586	41046	19.5800
2017	May	222418	37679	16.9400
2017	November	193967	21684	11.1700
2017	October	191667	21780	11.3600
2017	September	202101	28913	14.3000

## 5. Top 10 ATMs with the highest total withdrawn amount throughout the year

```
SELECT a.atm_id, a.atm_manufacturer, b.atm_location, sum(d.transaction_amount) as
total_transaction_amount
  from etl.atm a, etl.loc b, etl.FACT_ATM_TRANS d
  where d.atm_prim_id = a.atm_prim_id
  and b.location_id = d.location_id
 group by a.atm_id, a.atm_manufacturer, b.atm_location
 order by total_transaction_amount desc
 limit 10
```

```
Query 5:
SELECT a.atm_id, a.atm_manufacturer, b.atm_location, sum(d.transaction_amount) as total_transaction_amount
  from etl.atm a, etl.loc b, etl.FACT_ATM_TRANS d
  where d.atm_prim_id = a.atm_prim_id
  and b.location_id = d.location_id
 group by a.atm_id, a.atm_manufacturer, b.atm_location
 order by total_transaction_amount desc
 limit 10
```

aws Services Resource Groups				
upgradraghuveerdvn @ 6376-0... N. Virginia Support				
Rows returned (10)				
Search rows				
atm_id	atm_manufacturer	atm_location	total_transaction_amount	
39	NCR	Svenstrup	277097637	
20	NCR	Bispensgade	271008803	
24	NCR	Hobro	268289882	
10	NCR	NÅfÅ, rresundby	267379103	
45	NCR	Abildgaard	265639616	
16	NCR	Skive	220677013	
40	Diebold Nixdorf	Frederikshavn	219812287	
41	Diebold Nixdorf	Skagen	214127315	
1	NCR	NÅfÅ, stved	213721117	
48	Diebold Nixdorf	BrÅfÅ, nderslev	212883099	

Result:

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## 6. Number of failed ATM transactions across various card types

```
select a.card_type, a.transaction_count, b.inactive_count,
round(100.0000*b.inactive_count/a.transaction_count,4) as inactive_count_percent from
(select c.card_type, count(d.trans_id) as transaction_count from etl.card c,
etl.FACT_ATM_TRANS d
where c.card_type_id = d.card_type_id group by c.card_type)a
left join
(select c.card_type, count(d.atm_status) as inactive_count from etl.card c,
etl.FACT_ATM_TRANS d
where c.card_type_id = d.card_type_id and d.atm_status='Inactive' group by
c.card_type)b
on a.card_type = b.card_type
order by inactive_count_percent desc;
```

card_type	transaction_count	inactive_count	inactive_count_percent
Mastercard - on-us	458226	86000	18.7680
VISA	170828	30713	17.9789
Dankort - on-us	143813	24680	17.1612
CIRRUS	17362	2953	17.0084
HÃfÃ\vekort - on-us	62487	10331	16.5330
Dankort	28581	4557	15.9442
MasterCard	400507	63482	15.8504
Visa Dankort - on-us	748805	112972	15.0870
HÃfÃ\vekort	8459	1208	14.2806
Visa Dankort	427840	60547	14.1518

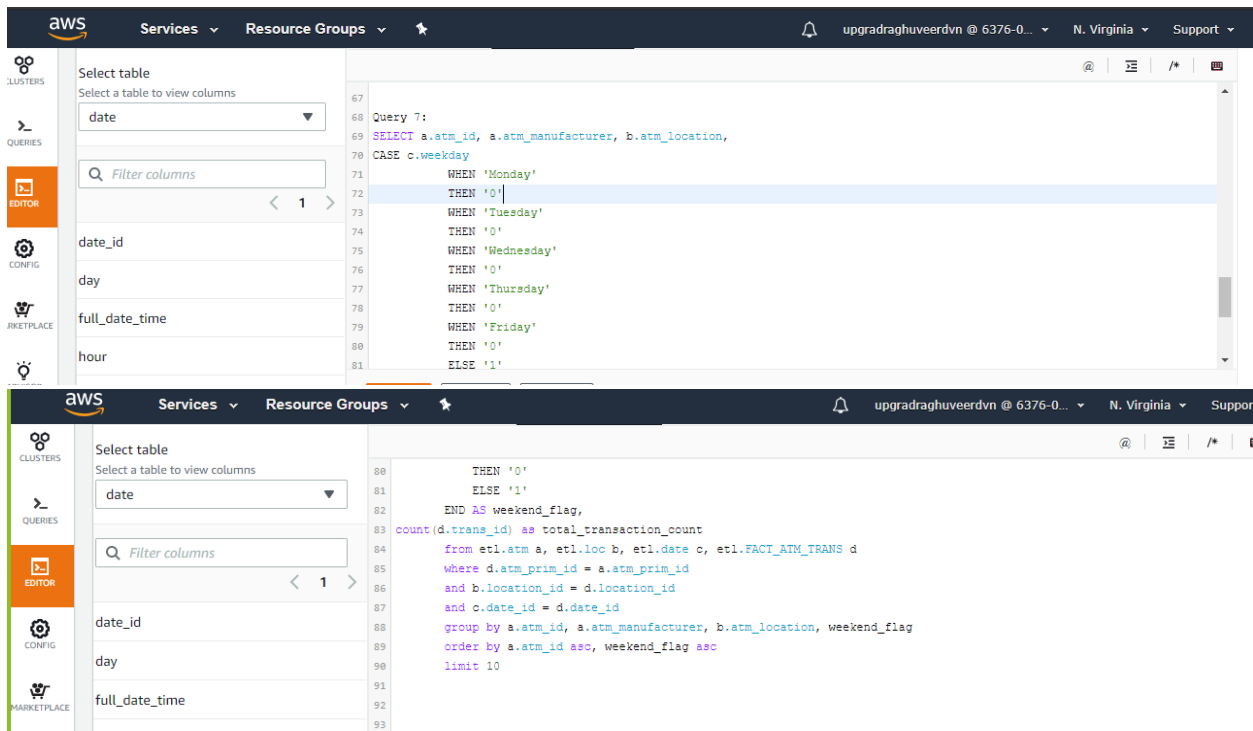
## 7. Number of transactions happening on an ATM on weekdays and on weekends throughout the year. Order this by the ATM\_number, ATM\_manufacturer, location, weekend\_flag and then total\_transaction\_count

```
SELECT a.atm_id, a.atm_manufacturer, b.atm_location,
CASE c.weekday
WHEN 'Monday'
THEN '0'
WHEN 'Tuesday'
```

```

THEN '0'
WHEN 'Wednesday'
THEN '0'
WHEN 'Thursday'
THEN '0'
WHEN 'Friday'
THEN '0'
ELSE '1'
END AS weekend_flag,
count(d.trans_id) as total_transaction_count
from etl.atm a, etl.loc b, etl.date c, etl.FACT_ATM_TRANS d
where d.atm_prim_id = a.atm_prim_id
and b.location_id = d.location_id
and c.date_id = d.date_id
group by a.atm_id, a.atm_manufacturer, b.atm_location, weekend_flag
order by a.atm_id asc, weekend_flag asc
limit 10

```



The screenshot displays the AWS Glue console interface. On the left, the 'SELECT table' dropdown is set to 'date'. Below it, a list of columns is shown: date\_id, day, full\_date\_time, and hour. The main editor area shows the SQL query being constructed, with the 'weekend\_flag' subquery highlighted. The query is as follows:

```

67
68 Query 7:
69 SELECT a.atm_id, a.atm_manufacturer, b.atm_location,
70 CASE c.weekday
71 WHEN 'Monday'
72 THEN '0'
73 WHEN 'Tuesday'
74 THEN '0'
75 WHEN 'Wednesday'
76 THEN '0'
77 WHEN 'Thursday'
78 THEN '0'
79 WHEN 'Friday'
80 THEN '0'
81 ELSE '1'

```

console.aws.amazon.com/redshiftv2/home?region=us-east-1#query-editor:

Incognito (3)

Services Resource Groups

upgradraghuveerdvn @ 6376-0... N. Virginia Support

atm_id	atm_manufacturer	atm_location	weekend_flag	total_transaction_count
1	NCR	NÃfÃstved	0	32711
1	NCR	NÃfÃstved	1	10076
10	NCR	NÃfÃ, rresundby	0	41667
10	NCR	NÃfÃ, rresundby	1	12127
100	NCR	Intern Skive	0	17812
100	NCR	Intern Skive	1	1
101	NCR	Bryggen Vejle	0	11693
101	NCR	Bryggen Vejle	1	3247
102	NCR	Aalborg Storcenter Afd	0	14556
102	NCR	Aalborg Storcenter Afd	1	3741

## 8. Most active day in each ATMs from location "Vejgaard"

```
SELECT atm_id,
       atm_manufacturer,
       atm_location,
       weekday,
       total_transaction_count
FROM (
  select atm_id,
         atm_manufacturer,
         atm_location,
         weekday,
         total_transaction_count,
         max(total_transaction_count) over (partition by atm_id) as max_version
  from (SELECT a.atm_id, a.atm_manufacturer, b.atm_location, c.weekday,
        count(d.trans_id) as total_transaction_count
        from etl.atm a, etl.loc b, etl.date c, etl.FACT_ATM_TRANS d
        where d.atm_prim_id = a.atm_prim_id
        and b.location_id = d.location_id
        and b.atm_location = 'Vejgaard'
        and c.date_id = d.date_id
        group by a.atm_id, a.atm_manufacturer, b.atm_location, c.weekday) c
) t
where total_transaction_count = max_version;
```

atm_id	atm_manufacturer	atm_location	weekday	total_transaction_count
2	NCR	Vejgaard	Friday	6290
103	Diebold Nixdorf	Vejgaard	Friday	4757