

Apache Hive

by Sumit Mittal



IMPORTANT

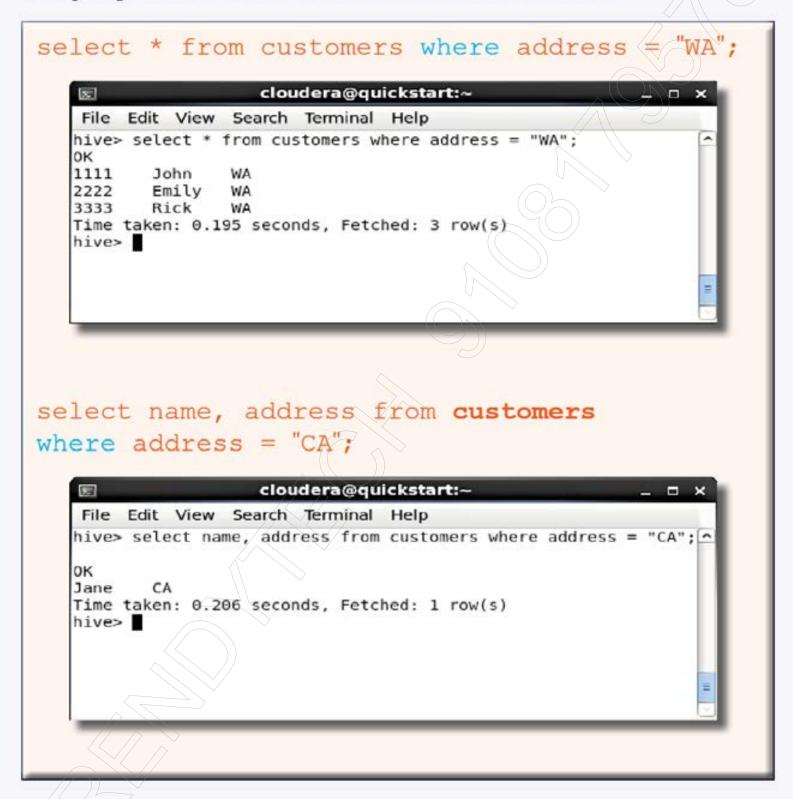
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Display table data with where condition:



```
select name, address from customers where

address = "WA" and id > 2222;

| Cloudera@quickstart:~ | X | X |
| File Edit View Search Terminal Help
| hive> select name, address from customers where address = "WA" | A |
| and id > 2222;
| OK |
| Rick | WA |
| Time taken: 0.416 seconds, Fetched: 1 row(s) |
| hive> |
```

To display distinct values:

```
select DISTINCT address from customers;
                                                  cloudera@quickstart:-
      File Edit View Search Terminal Help
     hive> select DISTINCT address from customers;
     Query ID = cloudera 20200210042020 26ca434e-79b5-4b1c-804a-706975088fe7
     Total jobs = 1
     Launching Job 1 out of 1
     Number of reduce tasks not specified. Estimated from input data size: 1
     In order to change the average load for a reducer (in bytes):
       set hive.exec.reducers.bytes.per.reducer=<number>
     In order to limit the maximum number of reducers:
      set hive.exec.reducers.max=<number>
     In order to set a constant number of reducers:
       set mapreduce.job.reduces=<number>
     Starting Job = job_1581052824490 0013, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1581052824490_0013/
     Kill Command = /usr/lib/hadoop/bin/hadoop job -kill job 1581052824498 0013
     Maddoop job information for Stage-1: number of mappers: 1; number of reducers: 1
     2020-02-10 04:20:50,883 Stage-1 map = 0%, reduce = 0%
     2020-02-10 04:21:05,360 Stage-1 map = 100%, reduce = 0%, Cumulative CPU 2.52 sec
     2020-02-10 04:22:05,907 Stage-1 map = 100%, reduce = 0%, Cumulative CPU 2.52 sec
     2020-02-10 04:22:32,069 Stage-1 map = 100%,
                                              reduce = 100%, Cumulative CPU 6.55 sec
     MapReduce Total cumulative CPU time: 6 seconds 550 msec
     Ended Job = job 1581052824490 6013
     MapReduce Jobs Launched:
     Stage-Stage-1: Map: 1 Reduce: 1 Cumulative CPU: 6.55 sec HDF5 Read: 7383 HDF5 Write: 12 SUCCESS
     Total MapReduce CPU Time Spent: 6 seconds 550 msec
                                Note: It will trigger MapReduce Job.
     NJ
     NY
     Time taken: 132.113 seconds, Fetched: 4 row(s)
```

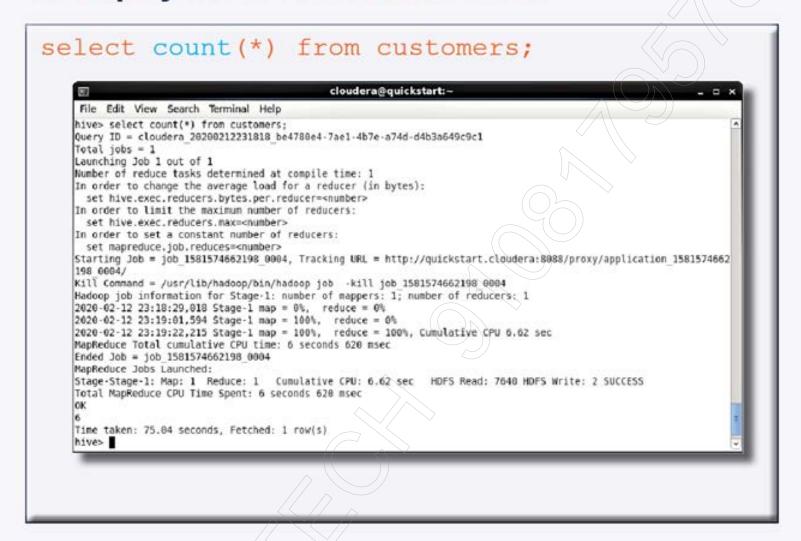
To display records with order by clause:

select name, address from customers order by address;

```
cloudera@quickstart:-
File Edit View Search Terminal Help
hive> select name, address from customers
   > order by address:
Query ID = cloudera_20200212231010_849b0d9d-4c8a-4001-970b-b0c9db3ef1ba
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
 set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
 set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
 set mapreduce.job.reduces<<number>
Starting Job = job 1581574662198 0002, Tracking URL = http://quickstart.cloudera:8088/proxy/application 1581574662198 0002/
Kill Command = /usr/lib/hadoop/bin/hadoop job -kill job 1581574662198 0802
Madoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2020-02-12 23:10:51,038 Stage-1 map = 0%, reduce = 0%
2020-02-12 23:11:12,618 Stage-1 map = 100%, reduce = 0%, Cumulative CPU 2.71 sec
2020-02-12 23:11:28.520 Stage-1 map = 100%, reduce = 100%. Cumulative CPU 3.96 sec
MapReduce Total cumulative CPU time: 5 seconds 960 msec
Ended Job = job 1581574662198 0002
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1 Reduce: 1 Cumulative CPU: 5.96 sec HDFS Read: 6985 HDFS Write: 49 SUCCESS
Total MapReduce CPU Time Spent: 5 seconds 960 msec
Jane
Amit
        NO
Nina
        NY
Rick
Emily
John
Time taken: 56.901 seconds, Fetched: 6 row(s)
hive>
```

Note: It will trigger MapReduce Job.

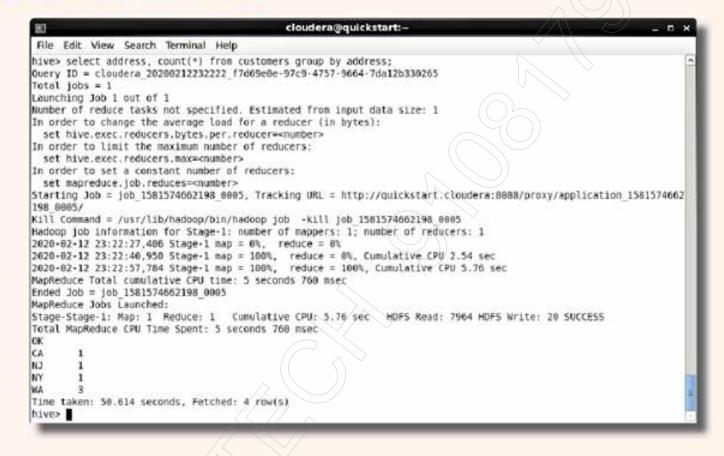
To display no. of records in a table:



Note: It will trigger MapReduce Job.

To display records with group by clause:

select address, count(*) from customers
group by address;



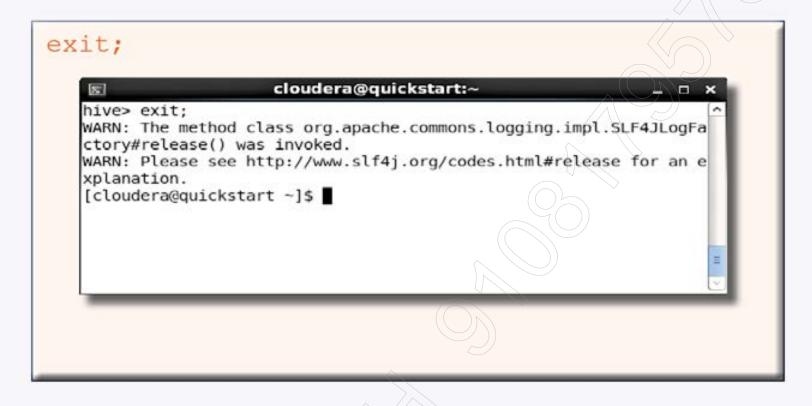
Note: It will trigger MapReduce Job.

To display records with group by clause:

```
select address, count(*) as customer count
from customers group by address;
                                             cloudera@quickstart:-
     hive> select address, count(*) as customer count from customers group by address;
     Query ID = cloudera 20200212232727 46909e61-f070-4c2c-8ed4-dc8c8521810c
     Total jobs = 1
     Launching Job 1 out of 1
     Number of reduce tasks not specified. Estimated from input data size: 1
     In order to change the average load for a reducer (in bytes):
      set hive.exec.reducers.bytes.per.reducer=<number>
     In order to limit the maximum number of reducers:
      set hive.exec.reducers.max=<number>
     In order to set a constant number of reducers:
      set mapreduce.job.reduces=<number>
     Starting Job = job 1581574662198 0006, Tracking URL = http://quickstart.cloudera:8088/proxy/application 1581574662
     Kill Command = /usr/lib/hadoop/bin/hadoop job -kill job 1581574662198 8886
     Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
     2020-02-12 23:28:00,002 Stage-1 map = 0%, reduce = 0%
     2028-02-12 23:28:14,538 Stage-1 map = 100%, reduce = 0%, Cumulative CPU 2.31 sec
     2020-02-12 23:28:30.437 Stage-1 map = 100%, reduce = 100%, Cumulative CPU 5.58 sec
     MapReduce Total cumulative CPU time: 5 seconds 580 msec
     Ended Job = job 1581574662198 0006
     MapReduce Jobs Launched:
     Stage-Stage-1: Map: 1 Reduce: 1 Cumulative CPU: 5.58 sec HDF5 Read: 7964 HDF5 Write: 20 SUCCESS
     Total MapReduce CPU Time Spent: 5 seconds 580 msec
     CA
     NJ.
     NY
     WA
     Time taken: 50.435 seconds, Fetched: 4 row(s)
     hive>
```

Display records using limit clause:

To exit from Hive shell:





Create a new hive table with <if not exist> statement:

 Open hive: cloudera@quickstart:~ File Edit View Search Terminal Help [cloudera@quickstart ~]\$ hive Logging initialized using configuration in file:/etc/hive/conf.dist/hive-log4j.properties WARNING: Hive CLI is deprecated and migration to Beeline is recommended. hive> use database trendytech; cloudera@quickstart:~ File Edit View Search Terminal Help hive> show databases; OK default trendytech Time taken: 0.991 seconds, Fetched: 2 row(s) hive> use trendytech; Time taken: 0.444 seconds hive>

Create a table with <if not exist> statement:

```
create table if not exists orders (
id bigint,
product id string,
customer id bigint,
quantity int,
amount double
);
                   cloudera@quickstart:~
   File Edit View Search Terminal Help
   hive> create table if not exists orders (
      > id bigint,
      > product id string,
      > customer id bigint,
      > quantity int,
      > amount double
      > ):
   Time taken: 25.615 seconds
   hive>
Note: If the table with same name already exists,
```

Note: If the table with same name already exists, the above statement won't do anything.

If the table does not exists, then it will create a new table.

Insert a record into orders table:

```
insert into orders values
1111111, "phone", 11111, 3, 1200
                                                           cloudera@quickstart:-
       File Edit View Search Terminal Help
       hive> insert into orders values
          > 111111, "phone", 1111, 3, 1200
      Query ID = cloudera 20200211063838 492d239a-f227-4859-a904-3d5db5998f22
      Total jobs = 3
      Launching Job 1 out of 3
Number of reduce tasks is set to 0 since there's no reduce operator
      Starting Job = job 1581431172423 0001, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1581431172423_0001/
Kill Command = /usr/lib/hadoop/bin/hadoop job -kill job 1581431172423_0001
      Hadoop job information for Stage-1: number of mappers: 1: number of reducers: 0
      2020-02-11 06:39:07,259 Stage-1 map = 0%, reduce = 0%
      2020-02-11 06:39:34,584 Stage-1 map = 100%, reduce = 0%, Cumulative CPU 4.04 sec
      MapReduce Total cumulative CPU time: 4 seconds 40 msec
      Ended Job = job 1581431172423 8881
      Stage-4 is selected by condition resolver.
      Stage-3 is filtered out by condition resolver.
      Stage-5 is filtered out by condition resolver
      Moving data to: hdfs://quickstart.cloudera:8020/user/hive/warehouse/trendytech.db/orders/.hive-staging hive 2020-02-11 06-38-10 819
       6516015470078987764-1/-ext-10000
      Loading data to table trendytech.orders
      Table trendytech.orders stats: [numFiles=1, numRows=1, totalSize=27, rawDataSize=26]
      MapReduce Jobs Launched:
      Stage-Stage-1: Map: 1 Cumulative CPU: 4.04 sec MDFS Read: 4714 MDFS Write: 100 SUCCESS
      Total MapReduce CPU Time Spent: 4 seconds 40 msec
      Time taken: 93.058 seconds
      hive>
```

Note: It will trigger MapReduce job.

Insert multiple records into orders table

```
insert into orders values
(
111112, "camera", 1111, 1, 5200), (
111113, "broom", 1111, 1, 10), (
111114, "broom", 2222, 2, 20), (
111115, "t-shirt", 4444, 2, 66
);
```

```
cloudera@quickstart:-
 File Edit View Search Terminal Help
hive> insert into orders values
    > 111112, "camera", 1111, 1,5200),(
> 111113, "broom", 1111, 1,10),(
> 111114, "broom", 2222, 2,20),(
    > 111115, "t-shirt", 4444, 2, 66
Ouery ID = cloudera_20200211064242_a3995ce4-e3a6-433c-99e5-9ccbf8e7c62c
Total jobs = 3
Launching Job I out of 3
Number of reduce tasks is set to 0 since there's no reduce operator
Starting Job = job 1581431172423 0002, Tracking URL = http://quickstart.cloudera:8088/proxy/application 1581431172423 0002/
Kill Command = /usr/lib/hadoop/bin/hadoop job -kill job 1581431172423 8002
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 0
2020-02-11 06:44:22,873 Stage-1 map = 0%, reduce = 0%
2020-02-11 06:44:44,156 Stage-1 map = 100%, reduce = 0%, Cumulative CPU 3.76 sec
MapReduce Total cumulative CPU time: 3 seconds 768 msec
Ended Job = job 1581431172423 8882
Stage-4 is selected by condition resolver.
Stage-3 is filtered out by condition resolver.
Stage-5 is filtered out by condition resolver.
Moving data to: hdfs://quickstart.cloudera:8020/user/hive/warehouse/trendytech.db/orders/.hive-staging hive 2020-02-11 06-42-01 321
 3671192994152449539-1/-ext-10000
Loading data to table trendytech orders
Table trendytech.orders stats: [numFiles=2, numRows=5, totalSize=132, rawDataSize=127]
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1 Cumulative CPU: 3.76 sec HDFS Read: 4902 HDFS Write: 179 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 760 msec
Time taken: 169.354 seconds
```

Note: It will trigger MapReduce job.

Working with



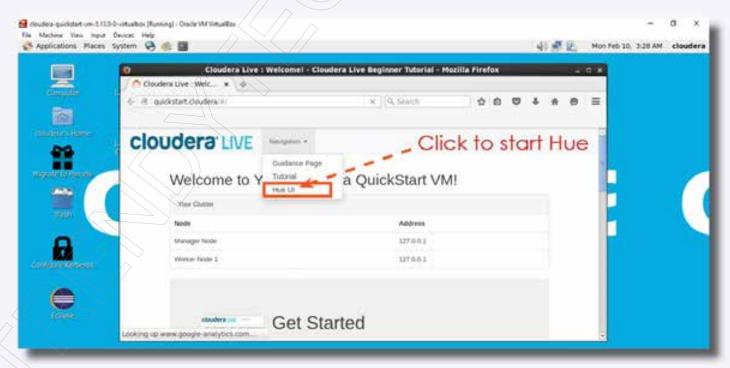


Invoking Hue:

Open cloudera browser



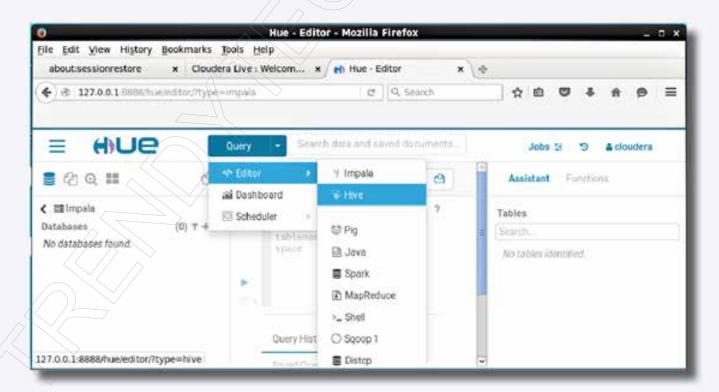
In the navigation drop-down menu choose Hue UI



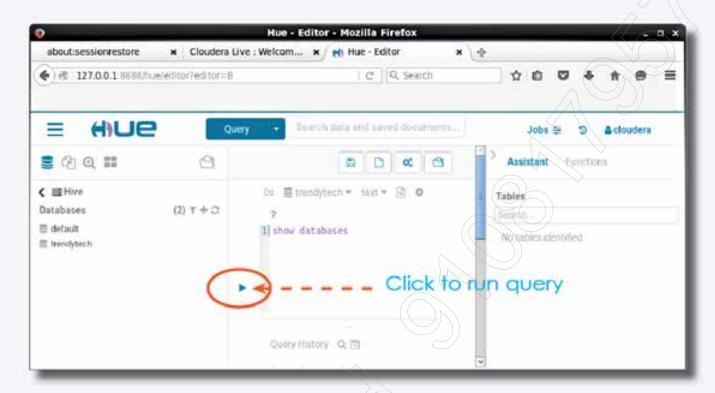
The Hue web UI:



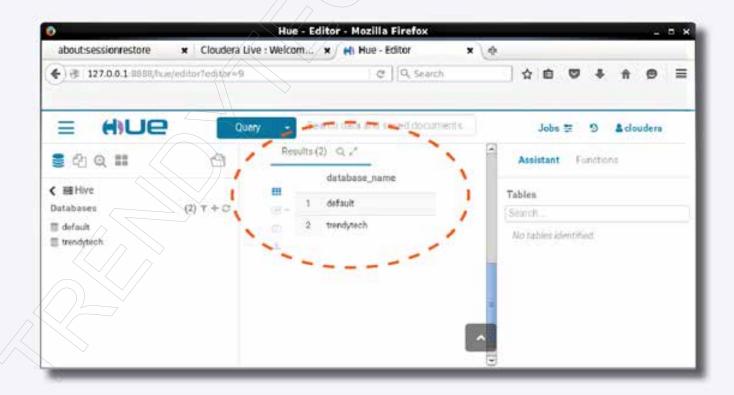
Select Hive from the Query menu:



Type Hive command on query area and run:



The result will be displayed in the result area:



Connecting Hive with Beeline



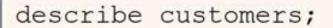
To enter Beeline:

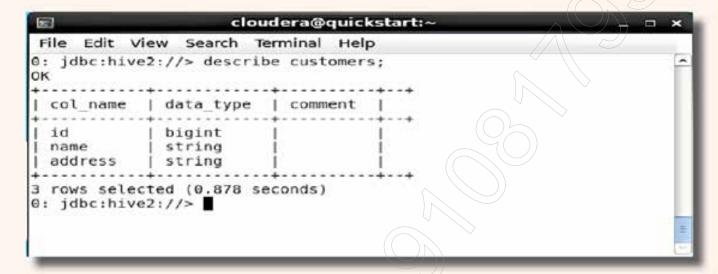
```
cloudera@quickstart:~

File Edit View Search Terminal Help
[cloudera@quickstart ~]$ beeline -u jdbc:hive2://
scan complete in 7ms
Connecting to jdbc:hive2://
Connected to: Apache Hive (version 1.1.0-cdh5.13.0)
Driver: Hive JDBC (version 1.1.0-cdh5.13.0)
Transaction isolation: TRANSACTION REPEATABLE READ
Beeline version 1.1.0-cdh5.13.0 by Apache Hive
0: jdbc:hive2://>
```

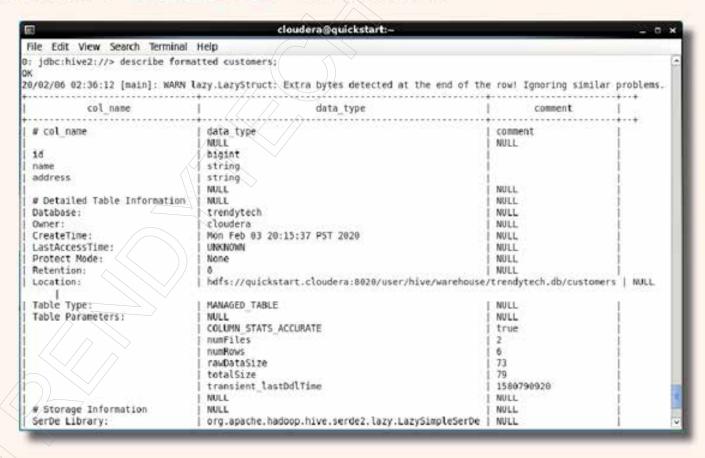
Run hive commands from Beeline:

Run few more hive commands from Beeline:

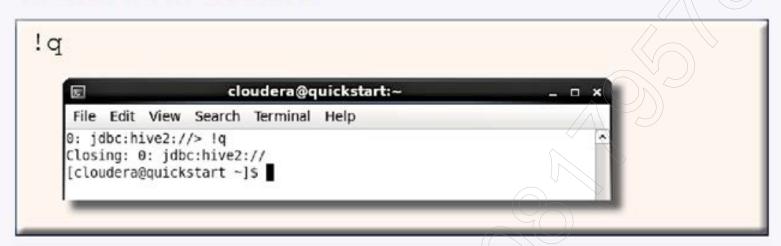




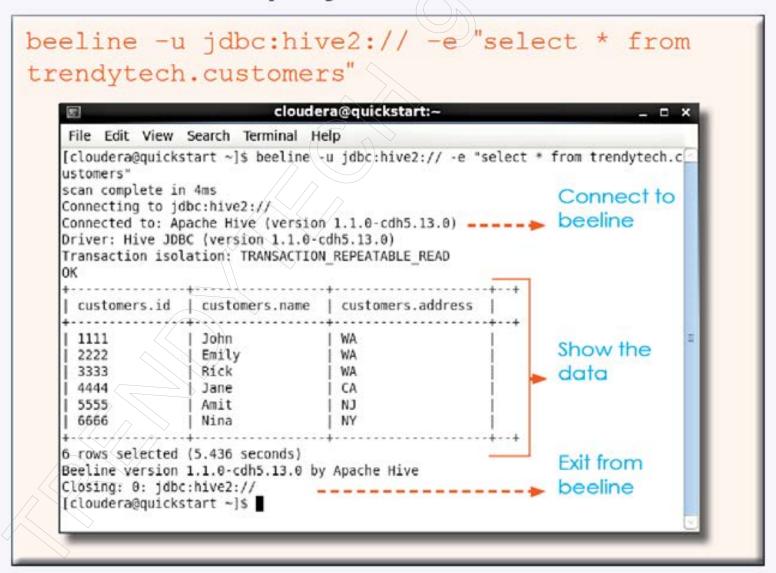
describe formatted customers;



To exit from Beeline:

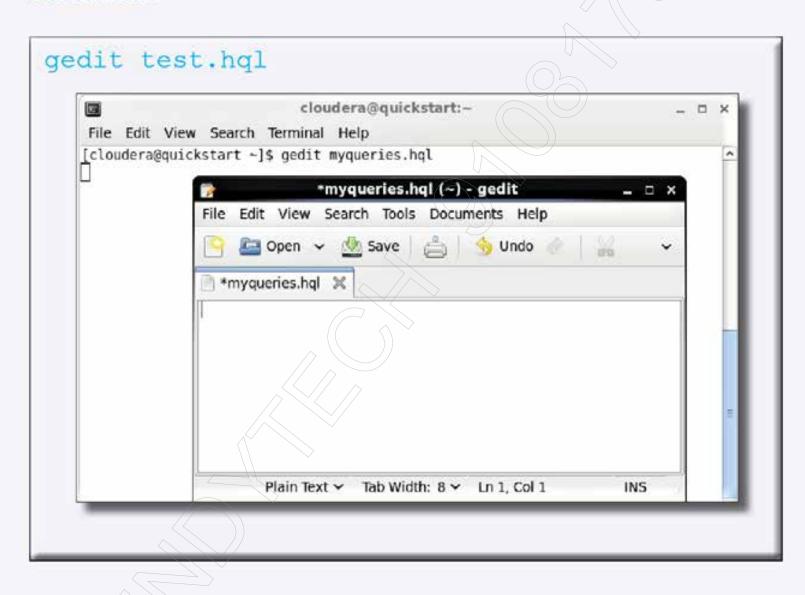


Execute beeline query from terminal:

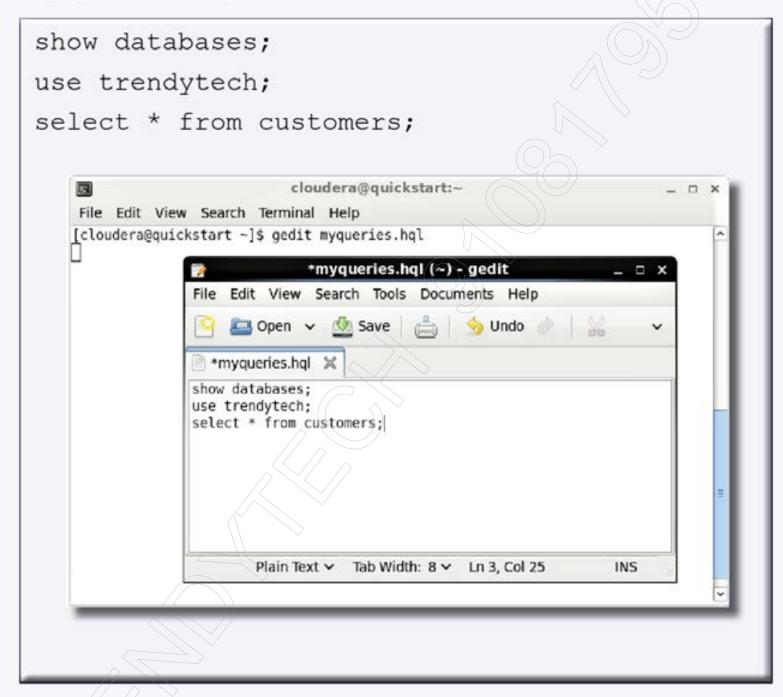


Run Beeline script file from terminal

Create a file *myqueries.hql* using gedit from terminal:



Enter following beeline queries inside myqueries. hql and save:



Execute the beeline script file from terminal:

beeline -u jdbc:hive2:// -f /home/cloudera/ myqueries.hql cloudera@quickstart:~ File Edit View Search Terminal Help [cloudera@quickstart ~]s beeline -u jdbc:hive2:// -f /home/cloudera/myqueries.hql scan complete in 6ms Connecting to jdbc:hive2:// Connected to: Apache Hive (version 1.1.0-cdh5.13.0) Driver: Hive JDBC (version 1.1.0-cdh5.13.0) Transaction isolation: TRANSACTION REPEATABLE READ 0: jdbc:hive2://> show databases; | database name | default 1 trendytech 2 rows selected (2.888 seconds) θ: jdbc:hive2://> use trendytech; No rows affected (0.372 seconds) 0: jdbc:hive2://> select * from customers; 0K | customers.id | customers.name | customers.address 11111 1 John | Emily WA 2222 | Rick | Jane 3333 4444 I CA 5555 | Amit 1 NJ 6666 6 rows selected (2.183 seconds) 0: jdbc:hive2://>

Run beeline script file from beeline itself

Enter into beeline:

```
cloudera@quickstart:~

File Edit View Search Terminal Help

[cloudera@quickstart ~]$ beeline -u jdbc:hive2://
scan complete in 7ms
Connecting to jdbc:hive2://
Connected to: Apache Hive (version 1.1.0-cdh5.13.0)
Driver: Hive JDBC (version 1.1.0-cdh5.13.0)
Transaction isolation: TRANSACTION REPEATABLE READ
Beeline version 1.1.0-cdh5.13.0 by Apache Hive
0: jdbc:hive2://>
```

Execute the beeline script:





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