



Apache Hive

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IMPORTANT

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Hive External Table



External Table

In External table, data not fully managed by Hive:

- Share the underlying data across other applications (Hadoop, Pig, HBase, etc)
- Deleting an external table deletes only the metadata

Create an external table in Hive:

```
create external table products(  
id string,  
title string,  
cost float)  
location '/data/';
```

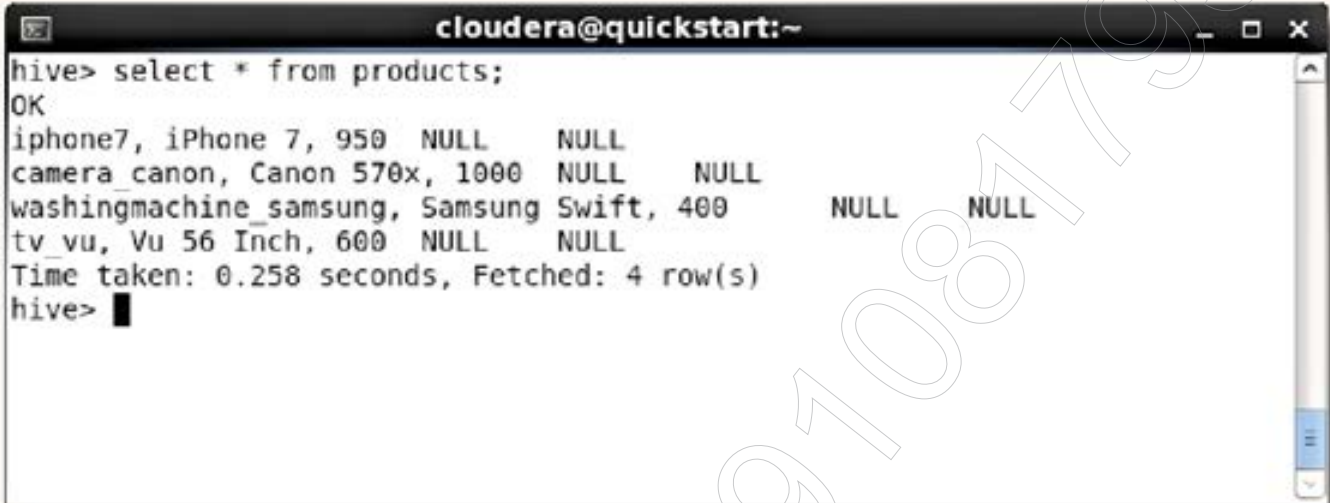


The screenshot shows a terminal window titled "cloudera@quickstart:~". The terminal has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The command being executed is "hive> create external table products(> id string,> title string,> cost float>)> location '/data/';". The output shows "OK" and "Time taken: 7.682 seconds". The prompt "hive>" is visible at the bottom.

```
cloudera@quickstart:~  
File Edit View Search Terminal Help  
hive> create external table products(  
  > id string,  
  > title string,  
  > cost float  
  > )  
  > location '/data/';  
OK  
Time taken: 7.682 seconds  
hive>
```


Display records of an external table:

```
select * from products;
```



```
cloudera@quickstart:~  
hive> select * from products;  
OK  
iphone7, iPhone 7, 950 NULL NULL  
camera_canon, Canon 570x, 1000 NULL NULL  
washingmachine_samsung, Samsung Swift, 400 NULL NULL  
tv_vu, Vu 56 Inch, 600 NULL NULL  
Time taken: 0.258 seconds, Fetched: 4 row(s)  
hive> █
```

Note: The output is not what we wanted

Open a new terminal and enter to Beeline:

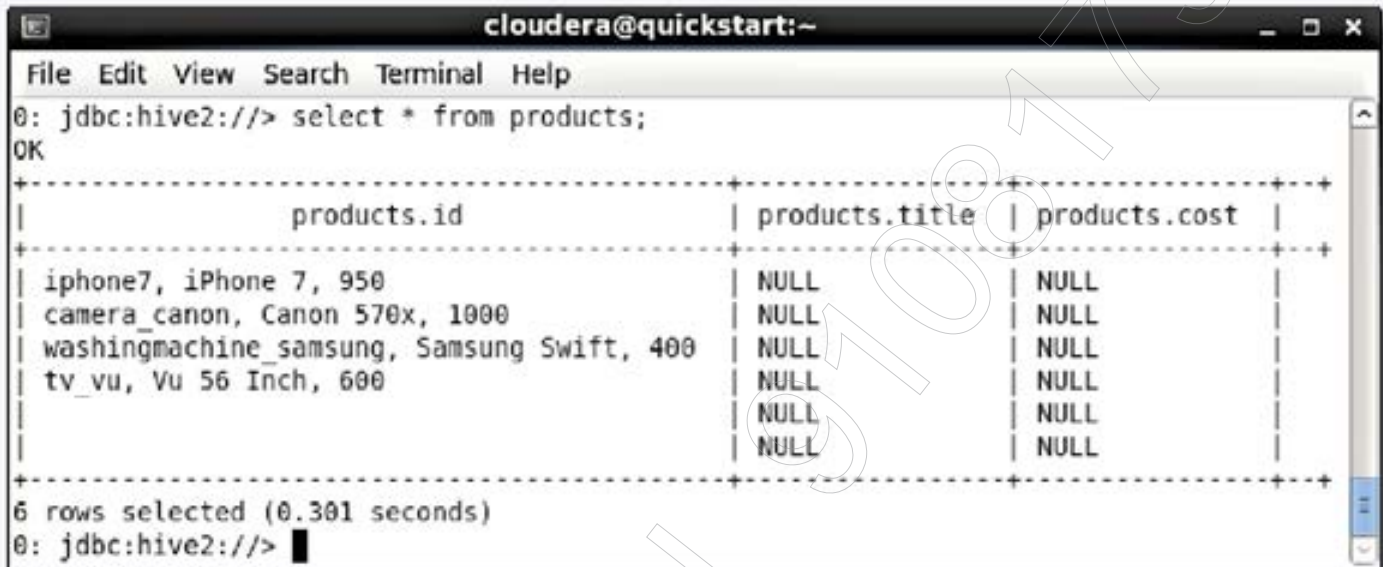
```
beeline -u jdbc:hive2://
```



```
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://> █
```

Display the same records of *products* external table using Beeline:

```
select * from products;
```



A terminal window titled 'cloudera@quickstart:~' showing the execution of a Beeline query. The prompt is '0: jdbc:hive2://>' and the command is 'select * from products;'. The output is 'OK' followed by a table of 6 rows. The first row contains product details, while the subsequent five rows contain NULL values. The table has three columns: products.id, products.title, and products.cost. Below the table, it states '6 rows selected (0.301 seconds)' and the prompt returns to '0: jdbc:hive2://>'.

products.id	products.title	products.cost
iphone7, iPhone 7, 950	NULL	NULL
camera_canon, Canon 570x, 1000	NULL	NULL
washingmachine_samsung, Samsung Swift, 400	NULL	NULL
tv_vu, Vu 56 Inch, 600	NULL	NULL
	NULL	NULL
	NULL	NULL

Drop an external table:

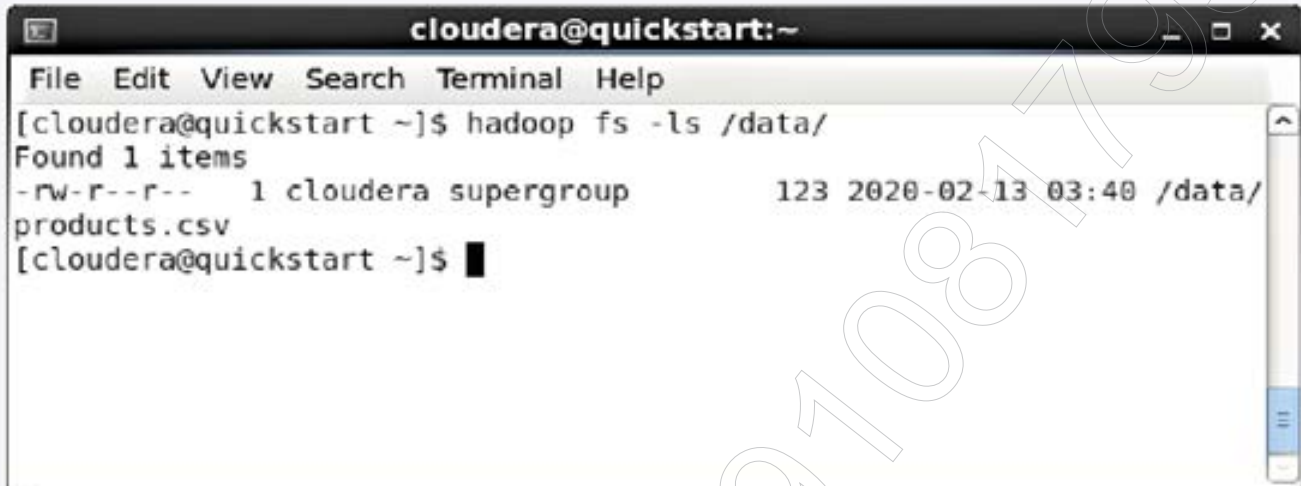
```
drop table products;
```



A terminal window titled 'cloudera@quickstart:~' showing the execution of the 'drop table products;' command. The prompt is 'hive>' and the command is 'drop table products;'. The output is 'OK' followed by 'Time taken: 5.54 seconds'. The prompt returns to 'hive>'.

Now, check the *data* folder in hdfs:

```
hadoop fs -ls /data/
```



A terminal window titled 'cloudera@quickstart:~' with a menu bar (File, Edit, View, Search, Terminal, Help). The command 'hadoop fs -ls /data/' is entered. The output shows 'Found 1 items' followed by a file listing: '-rw-r--r-- 1 cloudera supergroup 123 2020-02-13 03:40 /data/products.csv'. The prompt '[cloudera@quickstart ~]\$' is shown again with a cursor.

```
cloudera@quickstart:~  
File Edit View Search Terminal Help  
[cloudera@quickstart ~]$ hadoop fs -ls /data/  
Found 1 items  
-rw-r--r-- 1 cloudera supergroup      123 2020-02-13 03:40 /data/  
products.csv  
[cloudera@quickstart ~]$
```

Note: The data is still there.

Note: In Hive External table, data not fully managed by Hive and exists outside the warehouse directory.

Create an external table with delimiters:

```
create external table if not exists products (  
id string,  
title string,  
cost float  
)  
row format delimited  
fields terminated by ','  
stored as textfile  
location '/data/';
```



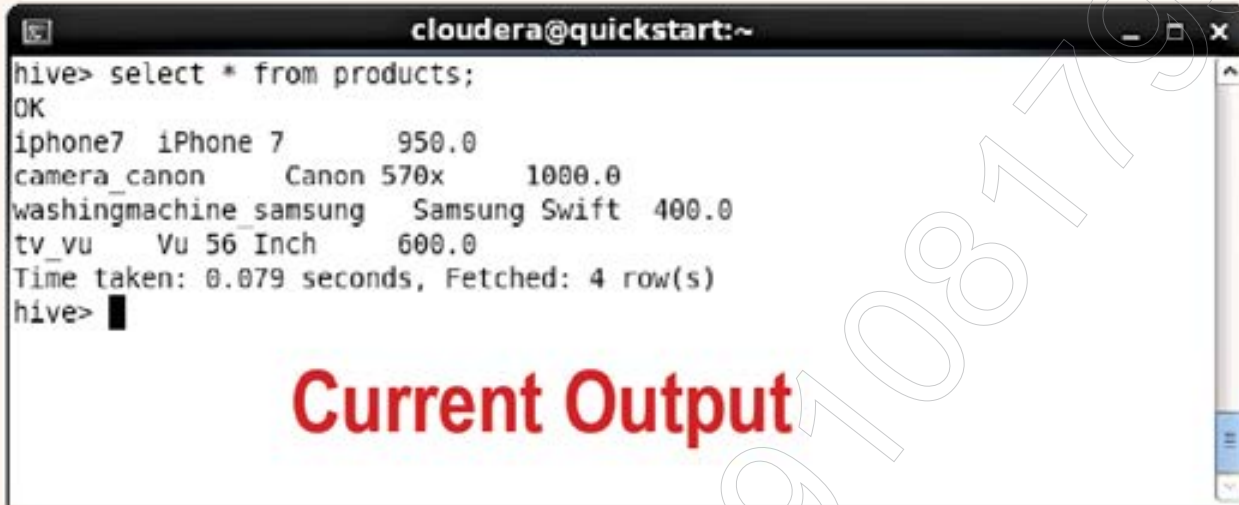
The screenshot shows a terminal window titled "cloudera@quickstart:-". The command being executed is "hive> create external table if not exists products(" followed by a list of fields: "id string,", "title string,", "cost float", and ")", then "row format delimited", "fields terminated by ','", "stored as textfile", and "location '/data/';". The command is followed by "OK", "Time taken: 0.569 seconds", and "hive>". A red dotted arrow points from the "fields terminated by ','" line in the code block above to the same line in the terminal window.

```
cloudera@quickstart:-  
hive> create external table if not exists products(  
  > id string,  
  > title string,  
  > cost float  
  > )  
  > row format delimited  
  > fields terminated by ','  
  > stored as textfile  
  > location '/data/';  
OK  
Time taken: 0.569 seconds  
hive>
```

Note: Hive by default takes **text** file format [We can skip this line also].

Display the contents of new *products* table:

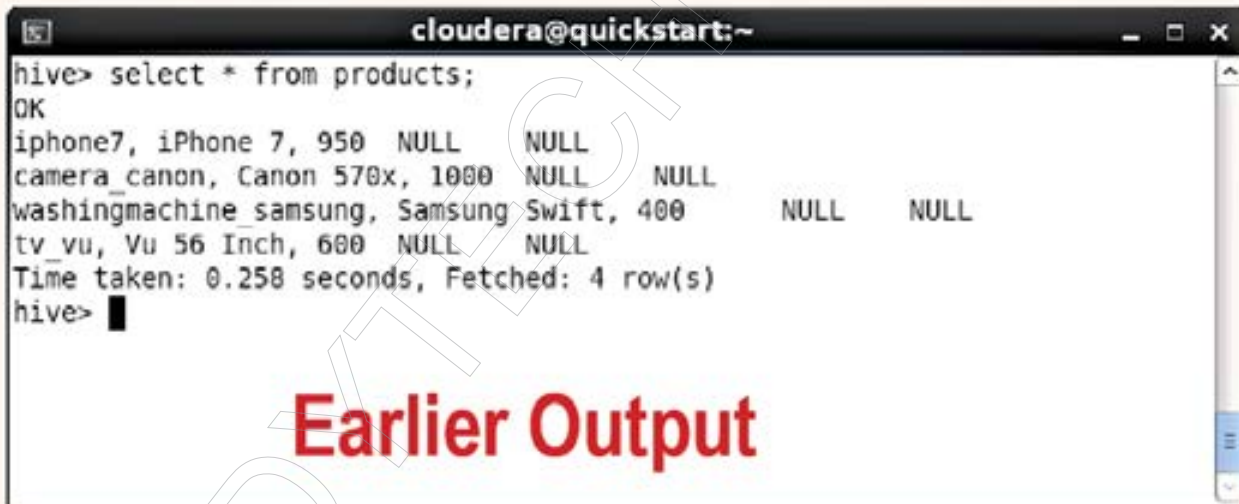
```
select * from products;
```



A terminal window titled 'cloudera@quickstart:~' showing the execution of the SQL query 'select * from products;'. The output displays four rows of product data with their respective prices. The text 'Current Output' is overlaid in red.

```
hive> select * from products;
OK
iphone7 iPhone 7 950.0
camera_canon Canon 570x 1000.0
washingmachine_samsung Samsung Swift 400.0
tv_vu Vu 56 Inch 600.0
Time taken: 0.079 seconds, Fetched: 4 row(s)
hive>
```

Current Output



A terminal window titled 'cloudera@quickstart:~' showing the execution of the SQL query 'select * from products;'. The output displays four rows of product data with their respective prices, including NULL values for some columns. The text 'Earlier Output' is overlaid in red.

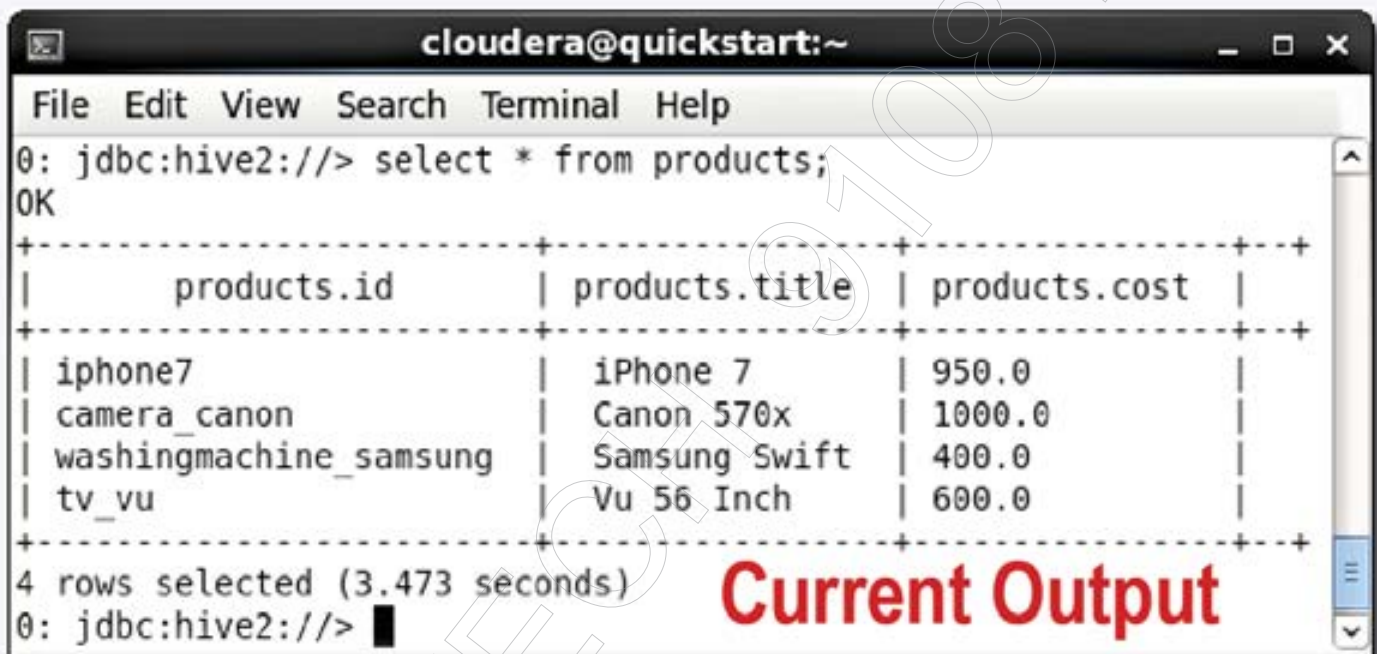
```
hive> select * from products;
OK
iphone7, iPhone 7, 950 NULL NULL
camera_canon, Canon 570x, 1000 NULL NULL
washingmachine_samsung, Samsung Swift, 400 NULL NULL
tv_vu, Vu 56 Inch, 600 NULL NULL
Time taken: 0.258 seconds, Fetched: 4 row(s)
hive>
```

Earlier Output

Display the same records (*products*) external table using Beeline:

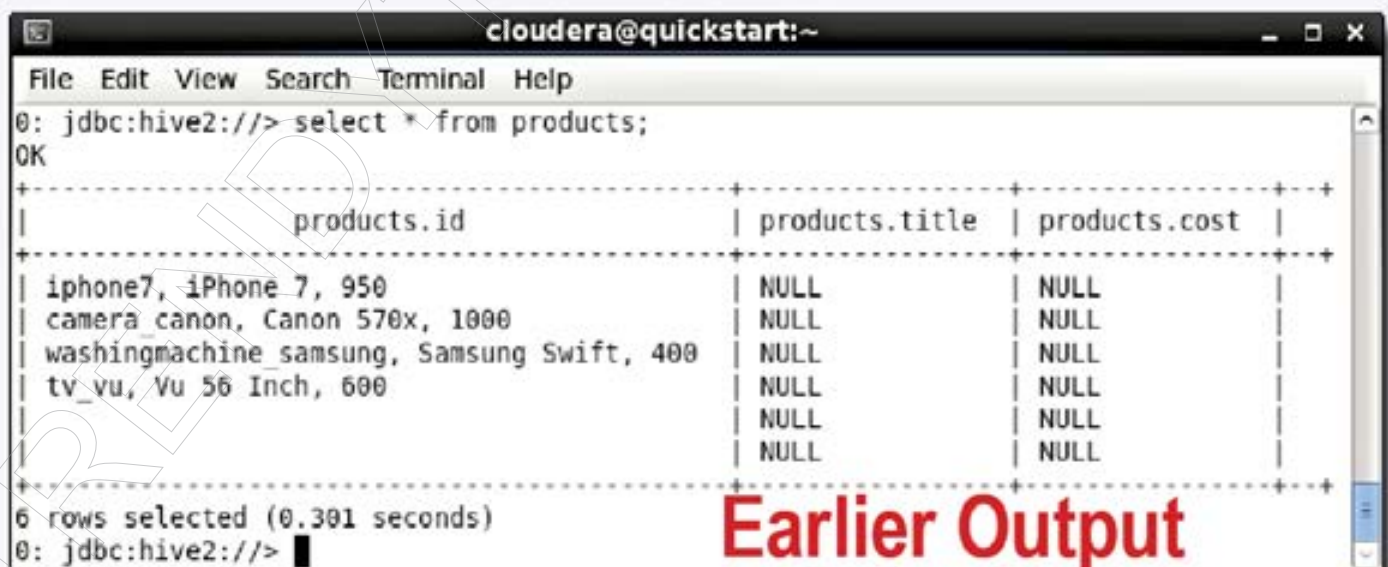
beeline -u jdbc:hive2:// → 1st enter beeline

```
select * from products;
```



```
cloudera@quickstart:~  
File Edit View Search Terminal Help  
0: jdbc:hive2://> select * from products;  
OK  
+-----+-----+-----+  
| products.id | products.title | products.cost |  
+-----+-----+-----+  
| iphone7 | iPhone 7 | 950.0 |  
| camera_canon | Canon 570x | 1000.0 |  
| washingmachine_samsung | Samsung Swift | 400.0 |  
| tv_vu | Vu 56 Inch | 600.0 |  
+-----+-----+-----+  
4 rows selected (3.473 seconds)  
0: jdbc:hive2://> █
```

Current Output



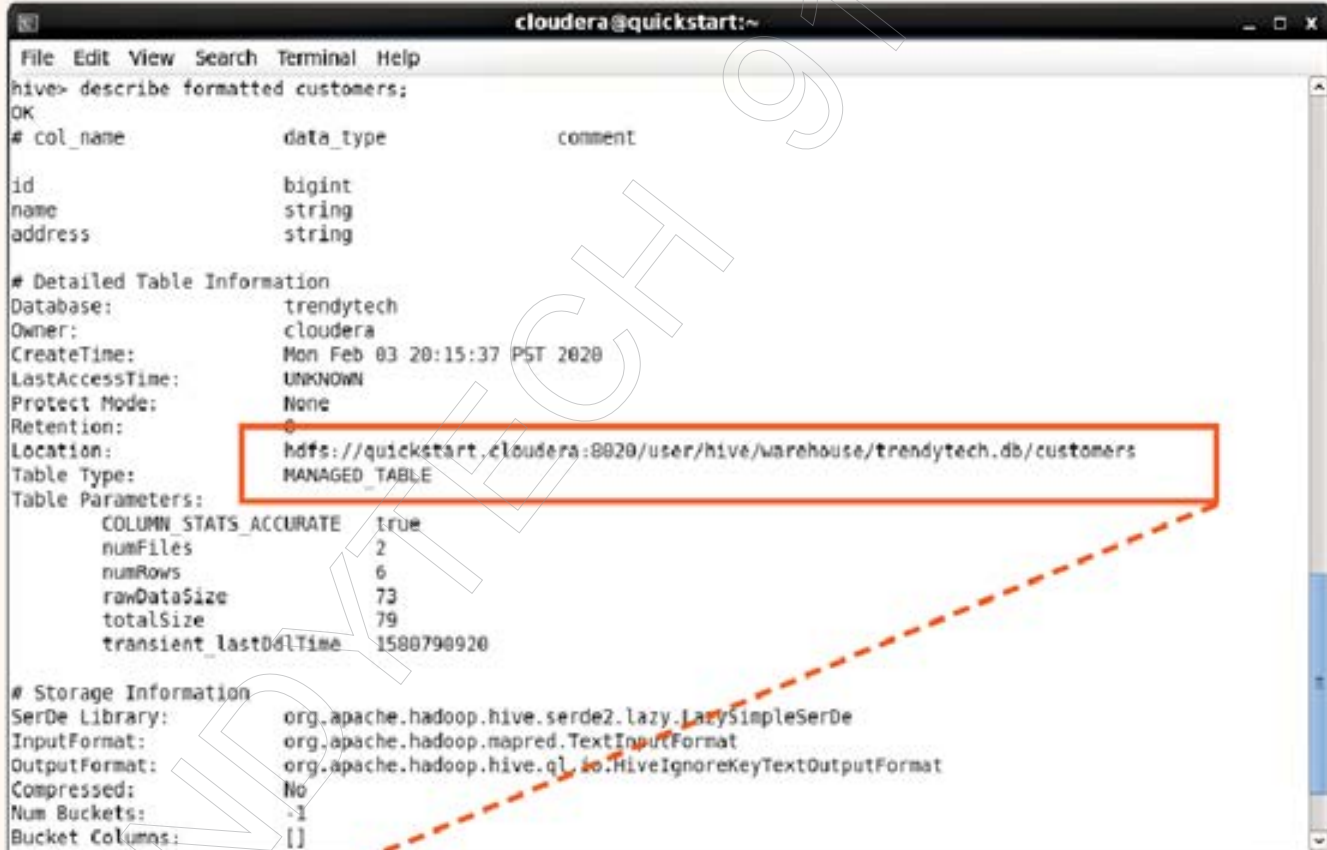
```
cloudera@quickstart:~  
File Edit View Search Terminal Help  
0: jdbc:hive2://> select * from products;  
OK  
+-----+-----+-----+  
| products.id | products.title | products.cost |  
+-----+-----+-----+  
| iphone7, iPhone 7, 950 | NULL | NULL |  
| camera_canon, Canon 570x, 1000 | NULL | NULL |  
| washingmachine_samsung, Samsung Swift, 400 | NULL | NULL |  
| tv_vu, Vu 56 Inch, 600 | NULL | NULL |  
| NULL | NULL | NULL |  
| NULL | NULL | NULL |  
+-----+-----+-----+  
6 rows selected (0.301 seconds)  
0: jdbc:hive2://> █
```

Earlier Output

How to know a table is Managed or External in Hive:

Detailed information about a Managed table:

```
describe formatted products;
```

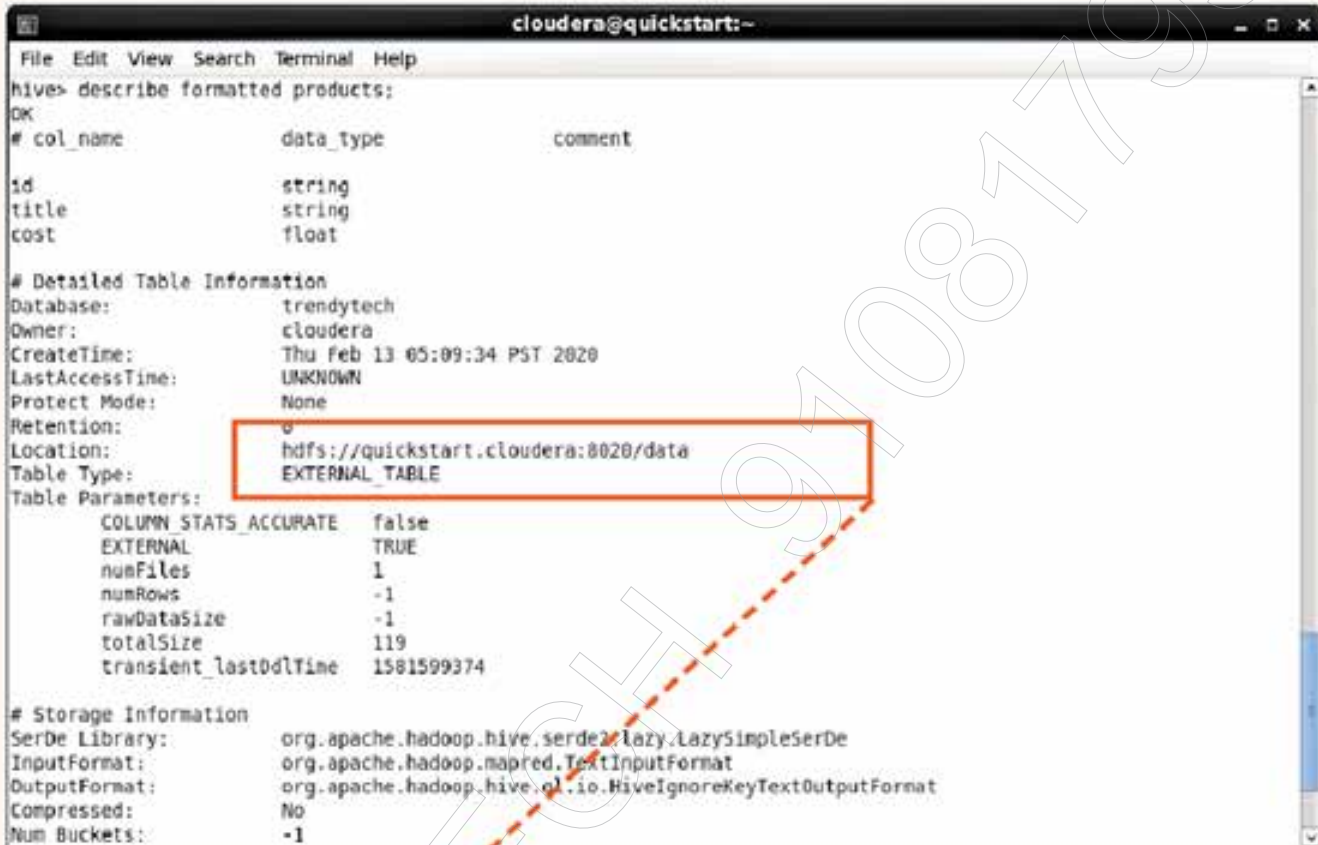


```
cloudera@quickstart:~  
File Edit View Search Terminal Help  
hive> describe formatted customers;  
OK  
# col_name          data_type          comment  
  
id                  bigint  
name                string  
address             string  
  
# Detailed Table Information  
Database:           trendytech  
Owner:               cloudera  
CreateTime:          Mon Feb 03 20:15:37 PST 2020  
LastAccessTime:      UNKNOWN  
Protect Mode:        None  
Retention:           0  
Location:            hdfs://quickstart.cloudera:8020/user/hive/warehouse/trendytech.db/customers  
Table Type:          MANAGED_TABLE  
Table Parameters:  
  COLUMN_STATS_ACCURATE true  
  numFiles              2  
  numRows               6  
  rawDataSize           73  
  totalSize             79  
  transient_lastDdlTime 1580790920  
  
# Storage Information  
SerDe Library:       org.apache.hadoop.hive.serde2.lazy.LazySimpleSerDe  
InputFormat:         org.apache.hadoop.mapred.TextInputFormat  
OutputFormat:        org.apache.hadoop.hive.q1.to.HiveIgnoreKeyTextOutputFormat  
Compressed:          No  
Num Buckets:         -1  
Bucket Columns:      []
```

Note: Location should be Warehouse directory and Table Type must be MANAGED TABLE

Detailed information about an External table:

describe formatted customers;



```
cloudera@quickstart:~$ hives> describe formatted products;
OK
# col_name          data_type          comment
id                  string
title              string
cost               float

# Detailed Table Information
Database:          trendytech
Owner:             cloudera
CreateTime:        Thu Feb 13 05:09:34 PST 2020
LastAccessTime:    UNKNOWN
Protect Mode:      None
Retention:         0
Location:          hdfs://quickstart.cloudera:8020/data
Table Type:        EXTERNAL_TABLE

Table Parameters:
  COLUMN_STATS_ACCURATE false
  EXTERNAL              TRUE
  numFiles              1
  numRows              -1
  rawDataSize          -1
  totalSize            119
  transient_lastDdlTime 1581599374

# Storage Information
SerDe Library:      org.apache.hadoop.hive.serde2.lazy.LazySimpleSerDe
InputFormat:        org.apache.hadoop.mapred.TextInputFormat
OutputFormat:       org.apache.hadoop.hive.ql.io.HiveIgnoreKeyTextOutputFormat
Compressed:         No
Num Buckets:        -1
```

Note: Location should be HDFS and
Table Type must be EXTERNAL TABLE



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