DOKUMENTASI IMPLEMENTASI PARTITION PADA MYSQL InnoDB

Oleh: Muhammad Adhitya Irvansyah (05111540000143)

1. Cek apakah plugin partition sudah aktif

2. buat partition untuk

   a. Range (contoh pada tutorial)

   b. Key

c. List

```
mysql> ALTER TABLE  measure_list PARTITION BY LIST COLUMNS (station_name)(
    -> PARTITION server_1 VALUES IN('test 1'),
    -> PARTITION server_2 VALUES IN('test 2'),
    -> PARTITION server_3 VALUES IN('test 3')
    -> );
Query OK, 1833796 rows affected (46.21 sec)
Records: 1833796  Duplicates: 0  Warnings: 0
```

d. HASH

```
mysql> alter table measure_hash PARTITION BY HASH(HOUR(measure_timestamp)) PARTITIONS 24;
Query OK, 1833796 rows affected (1 min 18.30 sec)
Records: 1833796  Duplicates: 0  Warnings: 0
```

3. Pengujian dengan query explain select

a. Key

```
mysql> EXPLAIN SELECT SQL_NO_CACHE COUNT(*) FROM measures WHERE measure_timestamp >= '2016-01-01' AND (station_name='test 1' OR station_name='test 2');
+----+-------------+----------+------------+------+-----------------+------+---------+------+---------+----------+-------------+
| id | select_type | table    | partitions | type | possible_keys   | key  | key_len | ref  | rows    | filtered | Extra       |
+----+-------------+----------+------------+------+-----------------+------+---------+------+---------+----------+-------------+
|  1 | SIMPLE      | measures | NULL       | ALL  | measure_timestamp | NULL | NULL    | NULL | 1826936 |     9.50 | Using where |
+----+-------------+----------+------------+------+-----------------+------+---------+------+---------+----------+-------------+
1 row in set (0.00 sec)

mysql> EXPLAIN SELECT SQL_NO_CACHE COUNT(*) FROM measure_key WHERE measure_timestamp >= '2016-01-01' AND (station_name='test 1' OR station_name='test 2');
+----+-------------+-------------+------------+------+---------------+------+---------+------+---------+----------+-------------+
| id | select_type | table       | partitions | type | possible_keys | key  | key_len | ref  | rows    | filtered | Extra       |
+----+-------------+-------------+------------+------+---------------+------+---------+------+---------+----------+-------------+
|  1 | SIMPLE      | measure_key | p0,p1      | ALL  | NULL          | NULL | NULL    | NULL | 1592656 |     6.33 | Using where |
+----+-------------+-------------+------------+------+---------------+------+---------+------+---------+----------+-------------+
1 row in set (0.00 sec)
```

b. Range

```
mysql> EXPLAIN SELECT SQL_NO_CACHE COUNT(*)
    -> FROM measures
    -> WHERE
    -> measure_timestamp >= '2016-01-01'
    -> AND DAYOFWEEK(measure_timestamp) = 1;
+----+-------------+----------+------------+-------+-----------------+-------------------+---------+------+--------+----------+--------------------------+
| id | select_type | table    | partitions | type  | possible_keys   | key               | key_len | ref  | rows   | filtered | Extra                    |
+----+-------------+----------+------------+-------+-----------------+-------------------+---------+------+--------+----------+--------------------------+
|  1 | SIMPLE      | measures | NULL       | range | measure_timestamp | measure_timestamp | 5       | NULL | 913468 |   100.00 | Using where; Using index |
+----+-------------+----------+------------+-------+-----------------+-------------------+---------+------+--------+----------+--------------------------+
1 row in set (0.28 sec)

mysql> EXPLAIN SELECT SQL_NO_CACHE COUNT(*) FROM measure_range WHERE measure_timestamp >= '2016-01-01' AND DAYOFWEEK(measure_timestamp) = 1;
+----+-------------+---------------+--------------+------+---------------+------+---------+------+--------+----------+-------------+
| id | select_type | table         | partitions   | type | possible_keys | key  | key_len | ref  | rows   | filtered | Extra       |
+----+-------------+---------------+--------------+------+---------------+------+---------+------+--------+----------+-------------+
|  1 | SIMPLE      | measure_range | current_logs | ALL  | NULL          | NULL | NULL    | NULL | 747636 |    33.33 | Using where |
+----+-------------+---------------+--------------+------+---------------+------+---------+------+--------+----------+-------------+
1 row in set (0.04 sec)
```

c. LIST

```
mysql> EXPLAIN SELECT SQL_NO_CACHE COUNT(*) FROM measures WHERE station_name='test 2' AND measure_timestamp >= '2016-01-01';
+----+-------------+----------+------------+------+-----------------+------+---------+------+---------+----------+-------------+
| id | select_type | table    | partitions | type | possible_keys   | key  | key_len | ref  | rows    | filtered | Extra       |
+----+-------------+----------+------------+------+-----------------+------+---------+------+---------+----------+-------------+
|  1 | SIMPLE      | measures | NULL       | ALL  | measure_timestamp | NULL | NULL    | NULL | 1826936 |     5.00 | Using where |
+----+-------------+----------+------------+------+-----------------+------+---------+------+---------+----------+-------------+
1 row in set (0.00 sec)

mysql> EXPLAIN SELECT SQL_NO_CACHE COUNT(*) FROM measure_list WHERE station_name='test 2' AND measure_timestamp >= '2016-01-01';
+----+-------------+--------------+------------+------+---------------+------+---------+------+--------+----------+-------------+
| id | select_type | table        | partitions | type | possible_keys | key  | key_len | ref  | rows   | filtered | Extra       |
+----+-------------+--------------+------------+------+---------------+------+---------+------+--------+----------+-------------+
|  1 | SIMPLE      | measure_list | server_2   | ALL  | NULL          | NULL | NULL    | NULL | 745684 |     3.33 | Using where |
+----+-------------+--------------+------------+------+---------------+------+---------+------+--------+----------+-------------+
1 row in set (0.00 sec)
```

d. hash


```
mysql> EXPLAIN SELECT SQL_NO_CACHE COUNT(*) FROM measures WHERE HOUR(measure_timestamp)>=12 AND measure_timestamp >= '2015-01-01';
+----+-------------+----------+------------+-------+-------------------+-------------------+---------+------+--------+----------+--------------------------+
| id | select_type | table    | partitions | type  | possible_keys     | key               | key_len | ref  | rows   | filtered | Extra                    |
+----+-------------+----------+------------+-------+-------------------+-------------------+---------+------+--------+----------+--------------------------+
|  1 | SIMPLE      | measures | NULL       | range | measure_timestamp | measure_timestamp | 5       | NULL | 913468 |   100.00 | Using where; Using index |
+----+-------------+----------+------------+-------+-------------------+-------------------+---------+------+--------+----------+--------------------------+
1 row in set (0.01 sec)

mysql> EXPLAIN SELECT SQL_NO_CACHE COUNT(*) FROM measure_hash WHERE HOUR(measure_timestamp)>=12 AND measure_timestamp >= '2015-01-01';
+----+-------------+--------------+-------------------------------------------------------------------------------------------+------+---------------+------+---------+------+
| id | select_type | table        | partitions                                                                                | type | possible_keys | key  | key_len | ref  |
      rows    | filtered | Extra       |
+----+-------------+--------------+-------------------------------------------------------------------------------------------+------+---------------+------+---------+------+
|  1 | SIMPLE      | measure_hash | p0,p1,p2,p3,p4,p5,p6,p7,p8,p9,p10,p11,p12,p13,p14,p15,p16,p17,p18,p19,p20,p21,p22,p23      | ALL  | NULL          | NULL | NULL    | NULL |
   1820796 |    33.33 | Using where |
+----+-------------+--------------+-------------------------------------------------------------------------------------------+------+---------------+------+---------+------+
1 row in set (0.01 sec)

mysql>
```

4. Pengujian selanjutnya menghapus record pada table penghapusan partisi secara spesifik hanya bisa dilakukan pada partisi yang berbentuk list dan range.karena itu penulis hanya melakukan pengujian pada kedua partisi tersebut


```
mysql> delete from measures where measure_timestamp < '2016-01-01';
Query OK, 1073958 rows affected (1 min 21.70 sec)

mysql> alter table measure_range drop partition prev_year_logs;
Query OK, 0 rows affected (0.37 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select count(*) from measure_range where measure_timestamp < '2016-01-01';
+----------+
| count(*) |
+----------+
|    85314 |
+----------+
1 row in set (1.64 sec)

mysql> explain select count(*) from measure_range;
+----+-------------+---------------+-------------------------+------+---------------+------+---------+------+--------+----------+-------+
| id | select_type | table         | partitions              | type | possible_keys | key  | key_len | ref  | rows   | filtered | Extra |
+----+-------------+---------------+-------------------------+------+---------------+------+---------+------+--------+----------+-------+
|  1 | SIMPLE      | measure_range | to_delete_logs,current_logs | ALL | NULL      | NULL | NULL    | NULL | 832693 |   100.00 | NULL  |
+----+-------------+---------------+-------------------------+------+---------------+------+---------+------+--------+----------+-------+
1 row in set (0.00 sec)
```



```
mysql> delete from delete_check where name_server='test 2';
ERROR 1054 (42S22): Unknown column 'name_server' in 'where clause'
mysql> delete from delete_check where station_name='test 2';
Query OK, 749979 rows affected (17.23 sec)

mysql> alter table emasure_list drop partition server_2;
ERROR 1146 (42S02): Table 'partitionTable.emasure_list' doesn't exist
mysql> alter table measure_list drop partition server_2;
Query OK, 0 rows affected (0.69 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> explain select count(*) from measure_list where station_name='test_2';
+----+-------------+--------------+------------+------+---------------+------+---------+------+------+----------+-------------+
| id | select_type | table        | partitions | type | possible_keys | key  | key_len | ref  | rows | filtered | Extra       |
+----+-------------+--------------+------------+------+---------------+------+---------+------+------+----------+-------------+
|  1 | SIMPLE      | measure_list | NULL       | ALL  | NULL          | NULL | NULL    | NULL |    1 |   100.00 | Using where |
+----+-------------+--------------+------------+------+---------------+------+---------+------+------+----------+-------------+
1 row in set (0.02 sec)

mysql> select count(*) from measure_list where station_name='test_2';
+----------+
| count(*) |
+----------+
|        0 |
+----------+
1 row in set (0.00 sec)

mysql>
```