

DOKUMENTASI IMPLEMENTASI PARTITION PADA MYSQL InnoDB

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1. Cek apakah plugin partition sudah aktif

```
vagrant@clusterdb4: ~  
mysql> SELECT  
->   PLUGIN_NAME as Name,  
->   PLUGIN_VERSION as Version,  
->   PLUGIN_STATUS as Status  
->   FROM INFORMATION_SCHEMA.PLUGINS  
->   WHERE PLUGIN_TYPE='NDB';  
Empty set (0.00 sec)  
  
mysql> show plugins  
-> ;  
+-----+-----+-----+-----+-----+  
| Name | Status | Type | Library | License |  
+-----+-----+-----+-----+-----+  
| binlog | ACTIVE | STORAGE ENGINE | NULL | GPL |  
| mysql_native_password | ACTIVE | AUTHENTICATION | NULL | GPL |  
| sha256_password | ACTIVE | AUTHENTICATION | NULL | GPL |  
| CSV | ACTIVE | STORAGE ENGINE | NULL | GPL |  
| MEMORY | ACTIVE | STORAGE ENGINE | NULL | GPL |  
| InnoDB | ACTIVE | STORAGE ENGINE | NULL | GPL |  
| INNODB_TRX | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_LOCKS | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_LOCK_WAITS | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_CMP | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_CMP_RESET | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_CMPMEM | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_CMPMEM_RESET | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_CMP_PER_INDEX | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_CMP_PER_INDEX_RESET | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_BUFFER_PAGE | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_BUFFER_PAGE_LRU | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_BUFFER_POOL_STATS | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_TEMP_TABLE_INFO | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_METRICS | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_FT_DEFAULT_STOPWORD | ACTIVE | INFORMATION SCHEMA | NULL | GPL |  
| INNODB_FT_DELETED | ACTIVE | INFORMATION SCHEMA | NULL | GPL |
```

2. buat partition untuk

- a. Range (contoh pada tutorial)

```
mysql> ALTER TABLE measure_range  
->  
-> PARTITION BY RANGE (YEAR(measure_timestamp)) (  
->  
-> PARTITION to_delete_logs VALUES LESS THAN (2015),  
->  
-> PARTITION prev_year_logs VALUES LESS THAN (2016),  
->  
-> PARTITION current_logs VALUES LESS THAN (MAXVALUE)  
->  
-> ) ;
```

```
mysql> alter table measure_key  
-> PARTITION BY KEY(station_name)  
-> PARTITIONS 3;  
Query OK, 1833796 rows affected (45.84 sec)  
Records: 1833796 Duplicates: 0 Warnings: 0
```

- 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

[illegible]

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>
```