

FIRST_SEEN	YYYYMMDD
LAST_SEEN	YYYYMMDD

```
SELECT * FROM users WHERE id = 42 SELECT * FROM users WHERE id = 1337 SELECT * FROM users
WHERE id = ?
```

PmaControl

Aspirateur

Aspirateur

```
SELECT
    DIGEST,
    DIGEST_TEXT,
    COUNT_STAR,
    SUM_TIMER_WAIT,
    AVG_TIMER_WAIT,
    SUM_ROWS_EXAMINED,
    SUM_ROWS_SENT,
    SUM_NO_INDEX_USED,
    SUM_NO_GOOD_INDEX_USED,
    FIRST_SEEN,
    LAST_SEEN
FROM performance_schema.events_statements_summary_by_digest
WHERE DIGEST IS NOT NULL
ORDER BY SUM_TIMER_WAIT DESC
LIMIT 500;
```

```
LIMIT 500 PmaControl 500
```

```
SET VALUE general_json
```

Listener

```
Listener Digest::integrate()
```

1. performance_schema TRUNCATE Digest::integrate

2. [REDACTED]

3. [REDACTED] P95 [REDACTED] 95 [REDACTED]

4. [REDACTED] **ts_mysql_digest_stat** [REDACTED] RocksDB [REDACTED]

Aspirateur

```
-> SELECT FROM performance_schema[REDACTED]
```

```
-> INSERT INTO ts_value_general_json
```

Listener

```
-> [REDACTED]ts_max_date [REDACTED]
```

```
-> Digest::integrate()
```

```
-> [REDACTED] - [REDACTED]
```

```
-> [REDACTED]
```

```
-> [REDACTED] P95
```

```
-> INSERT INTO ts_mysql_digest_stat
```

ts_mysql_digest_stat [REDACTED]

[REDACTED]

```
CREATE TABLE ts_mysql_digest_stat (  
  id BIGINT UNSIGNED AUTO_INCREMENT,  
  server_id INT UNSIGNED,  
  digest VARCHAR(64),  
  digest_text TEXT,  
  period_start DATETIME,  
  period_end DATETIME,  
  exec_count BIGINT UNSIGNED,  
  total_time_ms DECIMAL(20,3),  
  avg_time_ms DECIMAL(15,3),  
  p95_time_ms DECIMAL(15,3),  
  rows_examined BIGINT UNSIGNED,  
  rows_sent BIGINT UNSIGNED,  
  no_index_used BIGINT UNSIGNED,  
  PRIMARY KEY (id),  
  KEY idx_server_digest (server_id, digest, period_start)  
) ENGINE=ROCKSDB  
PARTITION BY RANGE (TO_DAYS(period_start)) (  
  PARTITION p20260413 VALUES LESS THAN (TO_DAYS('2026-04-14')),
```


rows_examined / rows_sent []

```
SELECT * FROM orders WHERE customer_id = ?
1,245,000
12,430
100:1
```

100:1 MariaDB / MySQL 100 1 []

customer_id []

```
SHOW INDEX FROM orders WHERE Column_name = 'customer_id';
```

[]

```
ALTER TABLE orders ADD INDEX idx_customer_id (customer_id);
```

SUM_NO_INDEX_USED []

PmaControl SUM_NO_INDEX_USED MariaDB / MySQL []

PmaControl EXPLAIN []

PmaControl []

```
EXPLAIN SELECT * FROM orders WHERE customer_id = 42 AND status = 'pending';
```

[]

- Type = ref type = eq_ref []
- Type = range []
- Type = ALL []

Marina+ Agent []

Marina+ PmaControl []

- rows_examined/rows_sent []
- SELECT * [] ORDER BY []
- sort_buffer_size join_buffer_size []

Marina+ — DBA

PMM Percona

PMM PmaControl performance_schema

	PmaControl	PMM
	performance_schema	performance_schema + slowlog
	Aspirateur + MySQL	mysqld_exporter + QAN
	ts_mysql_digest_stat	ClickHouse
	MariaDB / MySQL	Percona agent
P95		
		ClickHouse
	EXPLAIN	Query Analytics + PMM UI

PMM **performance_schema** PmaControl performance_schema

PmaControl PMM PmaControl

PmaControl 40%

```
#1 SELECT u.*, p.* FROM users u
JOIN purchases p ON u.id = p.user_id
WHERE p.created_at > ? AND u.country = ?
```

/ : 5,200 : 234ms P95: 1,200ms : 45M

rows_examined / rows_sent 4500 5,200

PmaControl `EXPLAIN`

```

+----+-----+-----+-----+-----+-----+-----+
| id | type | table   | key  | rows | filt | Extra |
+----+-----+-----+-----+-----+-----+-----+
| 1  | ALL  | users   | NULL | 1.2M | 10%  | where |
| 1  | ref  | purchases | idx1 | 15   | 33%  | where |
+----+-----+-----+-----+-----+-----+-----+

```

`users` `type=ALL` `country`

`country`

```
ALTER TABLE users ADD INDEX idx_country (country);
```

`country`

`PmaControl`

```

#1 SELECT u.*, p.* FROM users u
JOIN purchases p ON u.id = p.user_id
WHERE p.created_at > ? AND u.country = ?

rows: 5,200  time: 12ms  P95: 45ms  rows_sent: 78K

```

`234ms` `12ms` `19` `4500` `78K` `577`

`country`

1. `TRUNCATE performance_schema`

PmaControl `TRUNCATE TABLE performance_schema.events_statements_summary_by_digest`

2. `performance_schema_digests_size`

`MariaDB / MySQL` `N`

```

[mysqld]
performance_schema_digests_size = 10000 ; rows 5000

```

3. `performance_schema`

PmaControl `performance_schema` `"PmaControl"` `"Aspirateur"`

4. `rows_examined / rows_sent`

`rows_examined / rows_sent > 100:1` `rows_examined / rows_sent > 1000:1`

5. `P95`

`P95 < 10ms` `P95 < 500ms` `P95 < 1000ms`

`ts_mysql_digest_stat`

Performance_schema `MariaDB / MySQL` `PmaControl` `Aspirateur` -> `Digest::integrate` -> `ts_mysql_digest_stat` -> `ts_mysql_digest_stat`

`ts_mysql_digest_stat` Marina+ `ts_mysql_digest_stat` `ts_mysql_digest_stat`