

# Sysbench

Concurrent Programming

# Introduction

---

- What is the Sysbench?
- Installing Sysbench
- How to use? (OLTP benchmark)

# What is Sysbench?

---

- Modular, cross-platform and multi-threaded **benchmark tool** for evaluating OS parameters that are important for a system running a database under intensive load
- Quickly get an impression about system performance without setting up complex database benchmarks or even without installing a database at all.

# What is Sysbench?

---

- Sysbench comes with the following bundled benchmarks
  - **Collection of OLTP-like database benchmarks**
  - Filesystem-level benchmark
  - Simple CPU benchmark
  - Memory access benchmark
  - Thread-based scheduler benchmark
  - POSIX mutex benchmark

# Installing Sysbench

```
$ sudo apt-get install sysbench  
$ sysbench --help
```

```
[jongbin@multicore-96-2:~]$ sysbench --help  
Usage:  
    sysbench [options]... [testname] [command]  
  
Commands implemented by most tests: prepare run cleanup help  
  
General options:  
    --threads=N                      number of threads to use [1]  
    --events=N                        limit for total number of events [0]  
    --time=N                          limit for total execution time in seconds [10]
```

# How to use? (OLTP benchmark)

- OLTP script files are installed below path

```
$ ls /usr/share/sysbench
```

```
[jongbin@multicore-96-2:~$ ls /usr/share/sysbench/
bulk_insert.lua  oltp_delete.lua  oltp_point_select.lua  oltp_read_write.lua    oltp_update_non_index.lua  select_random_points.lua  tests
oltp_common.lua  oltp_insert.lua  oltp_read_only.lua    oltp_update_index.lua  oltp_write_only.lua    select_random_ranges.lua
```

# How to use? (OLTP benchmark)

- Before running OLTP test, you should create a test database
  - default: “sbtest”
- MariaDB server need to be running

```
$ cd project4/mariadb/inst  
$ ./bin/mysqladmin create sbtest
```

# How to use? (OLTP benchmark)

- Prepare a database table in which queries will be executed
- MariaDB server need to be running

```
$ sysbench --mysql-host=localhost --report-interval=1 --mysql-port=12943 \  
--mysql-socket=/path/of/your/project4/server/inst/mysql.sock \  
--mysql-user=$USER --mysql-db=sbtest --threads=10 --table-size=10000 \  
--tables=1 --time=60 /usr/share/sysbench/oltp_read_write.lua prepare
```

# How to use? (OLTP benchmark)

- Execute queries to profile a database performance

```
$ sysbench --mysql-host=localhost --report-interval=1 --mysql-port=12943 \
--mysql-socket=/path/of/your/project4/server/inst/mysql.sock \
--mysql-user=$USER --mysql-db=sbtest --threads=10 --table-size=10000 \
--tables=1 --time=60 /usr/share/sysbench/oltp_read_write.lua run
```

# How to use? (OLTP benchmark)

```
sysbench 1.1.0-174f3aa (using bundled LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 10
Report intermediate results every 1 second(s)
Initializing random number generator from current time

Initializing worker threads...

Threads started!

[ 1s ] thds: 10 tps: 55.82 qps: 1222.09 (r/w/o: 875.20/225.28/121.61) lat (ms,95%): 253.35 err/s: 0.00 reconn/s: 0.00
[ 2s ] thds: 10 tps: 64.95 qps: 1342.99 (r/w/o: 946.29/266.80/129.90) lat (ms,95%): 223.34 err/s: 0.00 reconn/s: 0.00
[ 3s ] thds: 10 tps: 49.97 qps: 1017.38 (r/w/o: 710.57/205.87/100.94) lat (ms,95%): 320.17 err/s: 1.00 reconn/s: 0.00
[ 4s ] thds: 10 tps: 56.02 qps: 1082.29 (r/w/o: 757.20/213.06/112.03) lat (ms,95%): 277.21 err/s: 0.00 reconn/s: 0.00
[ 5s ] thds: 10 tps: 52.98 qps: 1056.59 (r/w/o: 734.72/215.92/105.96) lat (ms,95%): 257.95 err/s: 0.00 reconn/s: 0.00
```

```
SQL statistics:
  queries performed:
    read:                      48944
    write:                     13975
    other:                     6988
    total:                     69907
  transactions:              3492  (58.07 per sec.)
  queries:                   69907 (1162.48 per sec.)
  ignored errors:            4     (0.07 per sec.)
  reconnects:                 0     (0.00 per sec.)

  Throughput:
    events/s (eps):           58.0684
    time elapsed:              60.1359s
    total number of events:   3492

  Latency (ms):
    min:                       39.29
    avg:                      172.15
    max:                      495.23
    95th percentile:           262.64
    sum:                      601131.27

  Threads fairness:
    events (avg/stddev):     349.2000/3.66
    execution time (avg/stddev): 60.1131/0.02
```

# How to use? (OLTP benchmark)

- Drop and re-create the test database(sbtest) before changing some sysbench parameters related to the test data

```
$ ./mysqladmin drop sbtest
$ ./mysqladmin create sbtest
$ sysbench --mysql-host=localhost --report-interval=1 --mysql-port=12943 \
--mysql-socket=/path/of/your/project4/server(inst/mysql.sock \
--mysql-user=$USER --mysql-db=sbtest --threads=10 --table-size=25000 \
--tables=2 --time=60 /usr/share/sysbench/oltp_read_write.lua prepare
```

# Thank You