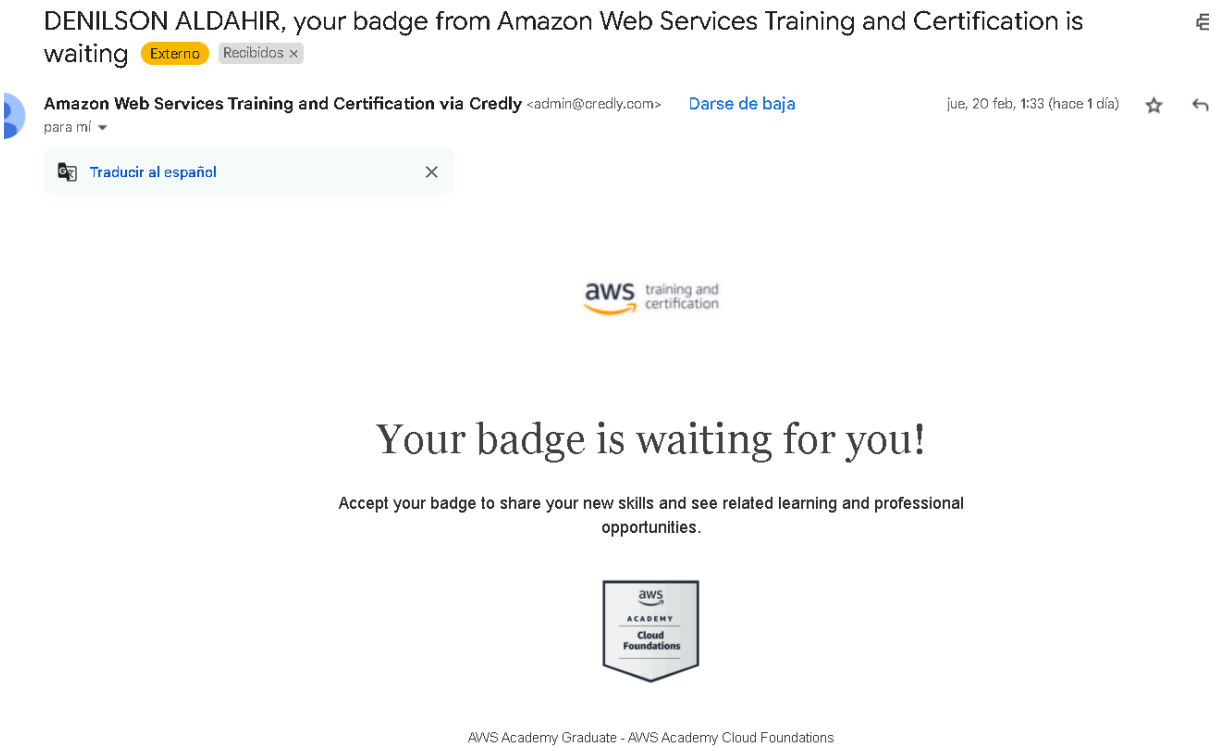
Tarea #997 Realizar el curso de AWS Cloud Foundations

Certificado AWS



Tarea #998 Instalar Galera 4 Cluster con MariaDB en Linux

sudo `apt -y install net-tools`

```
alda@Nodo:~$ sudo apt -y install net-tools
[sudo] password for alda:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 127 not upgraded.
Need to get 204 kB of archives.
After this operation, 811 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 net-tools amd64 2.10-0.1ubuntu4 [204 kB]
Fetched 204 kB in 21s (9,808 B/s)
Selecting previously unselected package net-tools.
(Reading database ... 83888 files and directories currently installed.)
Preparing to unpack .../net-tools_2.10-0.1ubuntu4_amd64.deb ...
Unpacking net-tools (2.10-0.1ubuntu4) ...
Setting up net-tools (2.10-0.1ubuntu4) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.
```

`apt -y install software-properties-common`

```
alda@Nodo:~$ sudo apt -y install software-properties-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  python3-software-properties
The following packages will be upgraded:
  python3-software-properties software-properties-common
2 upgraded, 0 newly installed, 0 to remove and 125 not upgraded.
Need to get 44.1 kB of archives.
After this operation, 0 B of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 software-properties-common all 0.99.49.1
Get:2 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 python3-software-properties all 0.99.49.
Fetched 44.1 kB in 11s (4,192 B/s)
(Reading database ... 83936 files and directories currently installed.)
Preparing to unpack .../software-properties-common_0.99.49.1_all.deb ...
Unpacking software-properties-common (0.99.49.1) over (0.99.48) ...
Preparing to unpack .../python3-software-properties_0.99.49.1_all.deb ...
Unpacking python3-software-properties (0.99.49.1) over (0.99.48) ...
Setting up python3-software-properties (0.99.49.1) ...
Setting up software-properties-common (0.99.49.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for dbus (1.14.10-4ubuntu4.1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.
```

`apt update`

```
alda@Nodo:~$ sudo apt update
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:6 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [363 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:8 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:9 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:10 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.6 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Ign:12 http://security.ubuntu.com/ubuntu noble-security InRelease
Get:12 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [8,960 B]
Get:14 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:15 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.0 kB]
Get:16 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Fetched 973 kB in 43s (22.6 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
125 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

```
apt -y install mariadb-server mariadb-client galera-4
```

```
alda@Nodo:~$ sudo apt -y install mariadb-server mariadb-client galera-4
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libconfig-inifiles-perl libdbd-mysql-perl libdbi-perl
  libencode-locale-perl libfcgi-bin libfcgi-perl libfcgi0t64 libhtml-parser-perl libhtml-tagset-perl
  libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl liblwp-mediatypes-perl libmariadb
  libmysqlclient21 libsnappy1v5 libtimedate-perl liburi-perl liburing2 mariadb-client-core mariadb-common
  mariadb-plugin-provider-bzip2 mariadb-plugin-provider-lz4 mariadb-plugin-provider-lzma mariadb-plugin-provider
  mariadb-plugin-provider-snappy mariadb-server-core mysql-common pv socat
Suggested packages:
  libmldbm-perl libnet-daemon-perl libsql-statement-perl libdata-dump-perl libipc-sharedcache-perl
  libio-compress-brotli-perl libbusiness-isbn-perl libregexp-ipv6-perl libwww-perl mailx mariadb-test doc-base
The following NEW packages will be installed:
  galera-4 libcgi-fast-perl libcgi-pm-perl libclone-perl libconfig-inifiles-perl libdbd-mysql-perl libdbi-perl
  libencode-locale-perl libfcgi-bin libfcgi-perl libfcgi0t64 libhtml-parser-perl libhtml-tagset-perl
  libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl liblwp-mediatypes-perl libmariadb
  libmysqlclient21 libsnappy1v5 libtimedate-perl liburi-perl liburing2 mariadb-client mariadb-client-core
  mariadb-common mariadb-plugin-provider-bzip2 mariadb-plugin-provider-lz4 mariadb-plugin-provider-lzma
  mariadb-plugin-provider-lzo mariadb-plugin-provider-snappy mariadb-server mariadb-server-core mysql-common pv
0 upgraded, 37 newly installed, 0 to remove and 125 not upgraded.
Need to get 19.0 MB of archives.
After this operation, 197 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/universe amd64 galera-4 amd64 26.4.16-2build4 [736 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 mysql-common all 5.8+1.1.0build1 [6,746 B]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 mariadb-common all 1:10.11.8-0ubuntu0.24.04.
kB]
Get:4 http://archive.ubuntu.com/ubuntu noble/main amd64 libdbi-perl amd64 1.643-4build3 [721 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble/main amd64 libconfig-inifiles-perl all 3.000003-2 [39.4 kB]
```

```
apt -y install galera-arbitrator-4
```

```
alda@Nodo:~$ sudo apt -y install galera-arbitrator-4
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libboost-program-options1.83.0
The following NEW packages will be installed:
  galera-arbitrator-4 libboost-program-options1.83.0
0 upgraded, 2 newly installed, 0 to remove and 125 not upgraded.
Need to get 896 kB of archives.
After this operation, 4,046 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libboost-program-options1.
 [320 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/universe amd64 galera-arbitrator-4 amd64 26.4
Fetched 896 kB in 16s (55.9 kB/s)
Selecting previously unselected package libboost-program-options1.83.0:amd64.
(Reading database ... 84889 files and directories currently installed.)
Preparing to unpack .../libboost-program-options1.83.0_1.83.0-2.1ubuntu3.1_amd64.deb ...
Unpacking libboost-program-options1.83.0:amd64 (1.83.0-2.1ubuntu3.1) ...
Selecting previously unselected package galera-arbitrator-4.
Preparing to unpack .../galera-arbitrator-4_26.4.16-2build4_amd64.deb ...
Unpacking galera-arbitrator-4 (26.4.16-2build4) ...
Setting up libboost-program-options1.83.0:amd64 (1.83.0-2.1ubuntu3.1) ...
Setting up galera-arbitrator-4 (26.4.16-2build4) ...
Created symlink /etc/systemd/system/garbd.service → /usr/lib/systemd/system/garb.service.
Created symlink /etc/systemd/system/multi-user.target.wants/garb.service → /usr/lib/systen
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.4) ...
Scanning processes
```

```
apt -y install mariadb-client libmariadb3
```

```
alda@Nodo:~$ sudo apt -y install mariadb-client libmariadb3
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
mariadb-client is already the newest version (1:10.11.8-0ubuntu0.24.04.1).
libmariadb3 is already the newest version (1:10.11.8-0ubuntu0.24.04.1).
libmariadb3 set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 125 not upgraded.
```

```
systemctl stop mysql
```

```
alda@Nodo:~$ systemctl stop mysql
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to stop 'mariadb.service'.
Authenticating as: alda
Password:
==== AUTHENTICATION COMPLETE ====
```

```
systemctl status mysql
```

```
alda@Nodo:~$ systemctl status mysql
○ mariadb.service - MariaDB 10.11.8 database server
     Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; preset: enabled)
     Active: inactive (dead) since Wed 2025-02-19 16:39:50 UTC; 13min ago
   Duration: 7min 28.580s
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
    Process: 2897 ExecStart=/usr/sbin/mariadbd $MYSQLD_OPTS $_WSREP_NEW_CLUSTER $_WSREP_START_POSITION (code=exited, st>
   Main PID: 2897 (code=exited, status=0/SUCCESS)
     Status: "MariaDB server is down"
        CPU: 3.718s

Feb 19 16:39:50 Nodo mariadbd[2897]: 2025-02-19 16:39:50 0 [Note] InnoDB: FTS optimize thread exiting.
Feb 19 16:39:50 Nodo mariadbd[2897]: 2025-02-19 16:39:50 0 [Note] InnoDB: Starting shutdown...
Feb 19 16:39:50 Nodo mariadbd[2897]: 2025-02-19 16:39:50 0 [Note] InnoDB: Dumping buffer pool(s) to /var/lib/mysql/ib_b>
Feb 19 16:39:50 Nodo mariadbd[2897]: 2025-02-19 16:39:50 0 [Note] InnoDB: Buffer pool(s) dump completed at 250219 16:39>
Feb 19 16:39:50 Nodo mariadbd[2897]: 2025-02-19 16:39:50 0 [Note] InnoDB: Removed temporary tablespace data file: "./ib>
Feb 19 16:39:50 Nodo mariadbd[2897]: 2025-02-19 16:39:50 0 [Note] InnoDB: Shutdown completed; log sequence number 46846>
Feb 19 16:39:50 Nodo mariadbd[2897]: 2025-02-19 16:39:50 0 [Note] /usr/sbin/mariadbd: Shutdown complete
Feb 19 16:39:50 Nodo systemd[1]: mariadb.service: Deactivated successfully.
Feb 19 16:39:50 Nodo systemd[1]: Stopped mariadb.service - MariaDB 10.11.8 database server.
Feb 19 16:39:50 Nodo systemd[1]: mariadb.service: Consumed 3.718s CPU time, 81.9M memory peak, 0B memory swap peak.
```

```
vi /etc/mysql/mariadb.conf.d/60-galera.cnf
```

```
#
# * Galera-related settings
#
# See the examples of server wsrep.cnf files in /usr/share/mysql
# and read more at https://mariadb.com/kb/en/galera-cluster/

[galera]
# Mandatory settings
#wsrep_on                = ON
#wsrep_cluster_name      = "MariaDB Galera Cluster"
#wsrep_cluster_address   = gcomm://
#binlog_format           = row
#default_storage_engine  = InnoDB
#innodb_autoinc_lock_mode = 2

# Allow server to accept connections on all interfaces.
#bind-address = 0.0.0.0

# Optional settings
#wsrep_slave_threads = 1
#innodb_flush_log_at_trx_commit = 0
~
~
~
~
~
~
~
~
"/etc/mysql/mariadb.conf.d/60-galera.cnf" [readonly] 21L, 570B
```

```
Símbolo del sistema | alda@Nodo: ~ | root@Nodo: /etc/mysql/mari
[mysqld]
binlog_format=ROW
default-storage-engine=innodb
innodb_autoinc_lock_mode=2
bind-address=0.0.0.0

# Galera Provider Configuration
wsrep_on=ON
wsrep_provider=/usr/lib/galera/libgalera_smm.so

# Galera Cluster Configuration
wsrep_cluster_name="test_cluster"
wsrep_cluster_address="gcomm://192.168.56.101"

# Galera Synchronization Configuration
wsrep_sst_method=rsync

# Galera Node Configuration
wsrep_node_address="192.168.56.101"
wsrep_node_name="nodo1"
~
~
~
~
~
```

`galera_new_cluster`

```
root@Nodo:/home/alda# galera_new_cluster
root@Nodo:/home/alda# netstat -tlpn
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:4567            0.0.0.0:*               LISTEN      4671/mariadbd
tcp        0      0 127.0.0.53:53           0.0.0.0:*               LISTEN      429/systemd-resolve
tcp        0      0 0.0.0.0:3306            0.0.0.0:*               LISTEN      4671/mariadbd
tcp        0      0 127.0.0.54:53           0.0.0.0:*               LISTEN      429/systemd-resolve
tcp6       0      0 :::22                   :::*                    LISTEN      1/init
root@Nodo:/home/alda#
```

```
mysql -u root -p -e "SHOW STATUS LIKE 'wsrep_cluster_size'"
```

```
root@Nodo:/home/alda# mysql -u root -p -e "SHOW STATUS LIKE 'wsrep_cluster_size'"
Enter password:
+--------------------+-------+
| Variable_name      | Value |
+--------------------+-------+
| wsrep_cluster_size | 1     |
+--------------------+-------+
root@Nodo:/home/alda#
```

```
mysql -u root --execute="SHOW GLOBAL STATUS WHERE Variable_name IN ('wsrep_ready', 'wsrep_cluster_size', 'wsrep_cluster_status', 'wsrep_connected');"
```

```
root@Nodo:/home/alda# mysql -u root --execute="SHOW GLOBAL STATUS WHERE Variable_name IN ('wsrep_ready', 'wsrep_cluster_size', 'wsrep_cluster_status', 'wsrep_connected');"
+----------------------+---------+
| Variable_name        | Value   |
+----------------------+---------+
| wsrep_cluster_size   | 1       |
| wsrep_cluster_status | Primary |
| wsrep_connected      | ON      |
| wsrep_ready          | ON      |
+----------------------+---------+
```

```
netstat -tlpn
```

```
root@Nodo:/home/alda# netstat -tlpn
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:4567            0.0.0.0:*               LISTEN      4671/mariadbd
tcp        0      0 127.0.0.53:53           0.0.0.0:*               LISTEN      429/systemd-resolve
tcp        0      0 0.0.0.0:3306            0.0.0.0:*               LISTEN      4671/mariadbd
tcp        0      0 127.0.0.54:53           0.0.0.0:*               LISTEN      429/systemd-resolve
tcp6       0      0 :::22                   :::*                    LISTEN      1/init
root@Nodo:/home/alda#
```

```
root@Nodo:/home/alda# systemctl status mysql
● mariadb.service - MariaDB 10.11.8 database server
     Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; preset: enabled)
     Active: active (running) since Sat 2025-02-22 00:56:14 UTC; 4min 47s ago
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
    Process: 4558 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/run/mysqld (code=exite
    Process: 4560 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_START_POSITION (code=exit
    Process: 4562 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && VAR= ||   VAR=`cd /usr/
    Process: 4689 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_START_POSITION (code=exi
    Process: 4691 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/SUCCESS)
   Main PID: 4671 (mariadbd)
     Status: "Taking your SQL requests now..."
      Tasks: 16 (limit: 22393)
     Memory: 105.6M (peak: 108.8M)
        CPU: 7.397s
     CGroup: /system.slice/mariadb.service
             └─4671 /usr/sbin/mariadbd --wsrep-new-cluster --wsrep_start_position=00000000-0000-0000-0
```

```
apt -y install sysbench
```

```
root@Cliente:/home/alda# apt -y install sysbench
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libluajit2-5.1-2 libluajit2-5.1-common libpq5
The following NEW packages will be installed:
  libluajit2-5.1-2 libluajit2-5.1-common libpq5 sysbench
0 upgraded, 4 newly installed, 0 to remove and 125 not upgraded.
Need to get 581 kB of archives.
After this operation, 1,641 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/universe amd64 libluajit2-5.1-common all 2.1-20230410
Get:2 http://archive.ubuntu.com/ubuntu noble/universe amd64 libluajit2-5.1-2 amd64 2.1-20230410-
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libpq5 amd64 16.6-0ubuntu0.24.04
Get:4 http://archive.ubuntu.com/ubuntu noble/universe amd64 sysbench amd64 1.0.20+ds-6build2 [11
Fetched 581 kB in 2s (379 kB/s)
Selecting previously unselected package libluajit2-5.1-common.
(Reading database ... 84906 files and directories currently installed.)
Preparing to unpack .../libluajit2-5.1-common_2.1-20230410-1build1_all.deb ...
Unpacking libluajit2-5.1-common (2.1-20230410-1build1) ...
Selecting previously unselected package libluajit2-5.1-2:amd64.
Preparing to unpack .../libluajit2-5.1-2_2.1-20230410-1build1_amd64.deb ...
Unpacking libluajit2-5.1-2:amd64 (2.1-20230410-1build1) ...
Selecting previously unselected package libpq5:amd64.
```

```
mysql -uroot -p -e "create database sbtest"
```

```
root@Cliente:/home/alda# mysql -uroot -p -e "create database sbtest"
Enter password:
root@Cliente:/home/alda#
```

```
sysbench  --threads=1 --db-driver=mysql --mysql-user=root --events=0
oltp_read_only prepare
```

```
root@Cliente:/home/alda# sysbench  --threads=1 --db-driver=mysql --mysql-user=root --events=0 oltp_read_only prepare
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Creating table 'sbtest1'...
Inserting 10000 records into 'sbtest1'
Creating a secondary index on 'sbtest1'...
```

```
sysbench  --threads=1 --time=5 --rate=0 --db-driver=mysql
--mysql-user=root --events=0 oltp_read_only run
```

```
root@Cliente:/home/alda# sysbench  --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_read_only run
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Initializing worker threads...

Threads started!

SQL statistics:
    queries performed:
        read:                            28140
        write:                           0
        other:                           4020
        total:                           32160
    transactions:                        2010   (401.32 per sec.)
    queries:                             32160  (6421.05 per sec.)
    ignored errors:                      0      (0.00 per sec.)
    reconnects:                          0      (0.00 per sec.)

General statistics:
    total time:                          5.0047s
    total number of events:              2010

Latency (ms):
         min:                                    0.62
         avg:                                    2.48
         max:                                   28.46
         95th percentile:                        7.70
         sum:                                 4993.53

Threads fairness:
    events (avg/stddev):           2010.0000/0.00
    execution time (avg/stddev):   4.9935/0.00
```

Set de pruebas de sysbench:

bulk_insert

sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0 bulk_insert prepare

sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 bulk_insert run

```
root@Cliente:/home/alda# sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0 bulk_insert prepare
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Creating table 'sbtest1'...
root@Cliente:/home/alda# sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 bulk_insert run
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Initializing worker threads...

Threads started!

FATAL: mysql_drv_query() returned error 1136 (Column count doesn't match value count at row 1) for query 'INSERT INTO sbtest1 VALUES(1,1),(2,2),(3,3),(4,4),
(5,5),(6,6),(7,7),(8,8),(9,9),(10,10),(11,11),(12,12),(13,13),(14,14),(15,15),(16,16),(17,17),(18,18),(19,19),(20,20),(21,21),(22,22),(23,23),(24,24),(25,25
),(26,26),(27,27),(28,28),(29,29),(30,30),(31,31),(32,32),(33,33),(34,34),(35,35),(36,36),(37,37),(38,38),(39,39),(40,40),(41,41),(42,42),(43,43),(44,44),(4
5,45),(46,46),(47,47),(48,48),(49,49),(50,50),(51,51),(52,52),(53,53),(54,54),(55,55),(56,56),(57,57),(58,58),(59,59),(60,60),(61,61),(62,62),(63,63),(64,64
),(65,65),(66,66),(67,67),(68,68),(69,69),(70,70),(71,71),(72,72),(73,73),(74,74),(75,75),(76,76),(77,77),(78,78),(79,79),(80,80),(81,81),(82,82),(83,83),(8
4,84),(85,85),(86,86),(87,87),(88,88),(89,89),(90,90),(91,91),(92,92),(93,93),(94,94),(95,95),(96,96),(97,97),(98,98),(99,99),(100,100),(101,101),(102,102),
(103,103),(104,104),(105,105),(106,106),(107,107),(108,108),(109,109),(110,110),(111,111),(112,112),(113,113),(114,114),(115,115),(116,116),(117,117),(118,1
18),(119,119),(120,120),(121,121),(122,122),(123,123),(124,124),(125,125),(126,126),(127,127),(128,128),(129,129),(130,130),(131,131),(132,132),(133,133),(1
34,134),(135,135),(136,136),(137,137),(138,138),(139,139),(140,140),(141,141),(142,142),(143,143),(144,144),(145,145),(146,146),(147,147),(148,148),(149,149
),(150,150),(151,151),(152,152),(153,153),(154,154),(155,155),(156,156),(157,157),(158,158),(159,159),(160,160),(161,161),(162,162),(163,163),(164,164),(165
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96),(197,197),(198,198),(199,199),(200,200),(201,201),(202,202),(203,203),(204,204),(205,205),(206,206),(207,207),(208,208),(209,209),(210,210),(211,211),(2
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,399),(400,400),(401,401),(402,402),(403,403),(404,404),(405,405),(406,406),(407,407),(408,408),(409,409),(410,410),(411,411),(412,412),(413,413),(414,414),
(415,415),(416,416),(417,417),(418,418),(419,4FATAL: `thread_run' function failed: /usr/share/sysbench/bulk_insert.lua:38: db_bulk_insert_next() failed
root@Cliente:/home/alda#
```
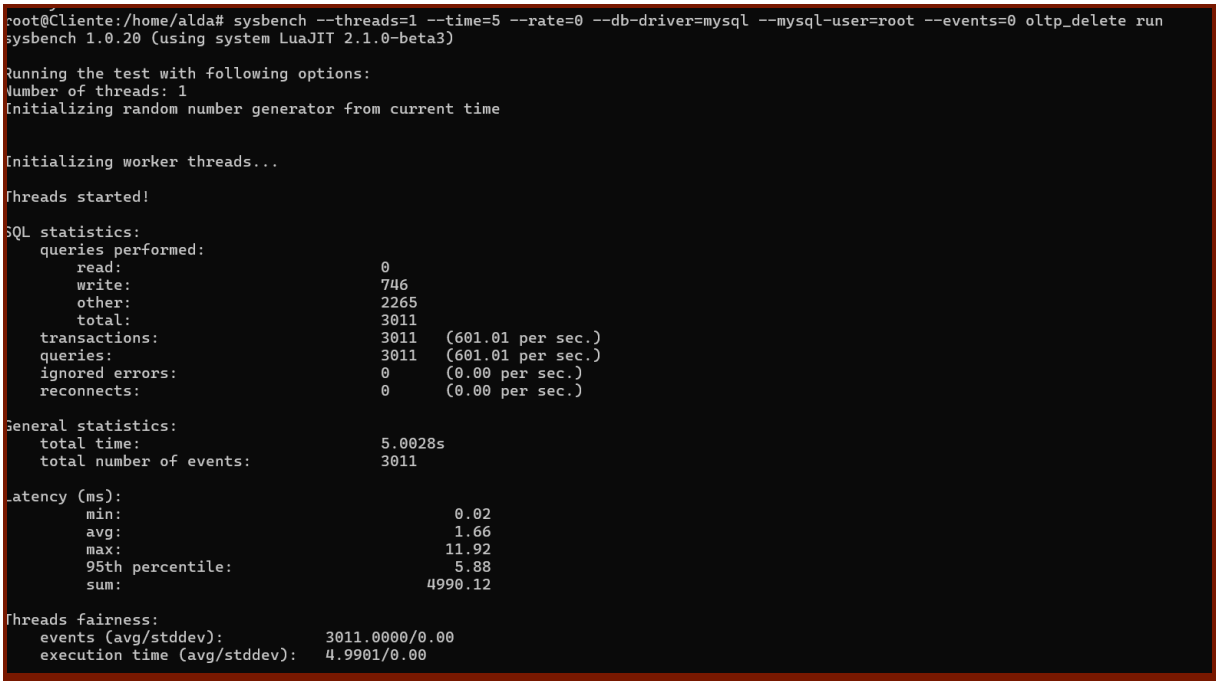

oltp_delete

sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0 oltp_delete prepare

sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_delete run



Resultados de la prueba:
"queries performed: write: 746, other: 2265, total: 3011":

- Aquí vemos que se realizaron 746 operaciones de escritura (las eliminaciones en sí).
- "other: 2265" indica que se realizaron 2265 otras consultas. En el caso de oltp_delete, estas consultas "other" corresponden a las consultas de select que se realizan para seleccionar que registros seran borrados.
- "total: 3011" es el total de todas las consultas.

"transactions: 3011 (601.01 per sec.)": Se completaron 3011 transacciones, con una tasa de 601.01 transacciones por segundo. Esto es significativamente más alto que la tasa de inserciones que vimos anteriormente, lo que indica que las eliminaciones son más rápidas en este entorno.
"total time: 5.0028s": La prueba duró aproximadamente 5 segundos.
"Latency (ms): avg: 1.66": La latencia promedio fue de 1.66 milisegundos, que es bastante baja, lo que confirma que las eliminaciones se realizaron de manera eficiente.
"Threads fairness: events (avg/stddev): 3011.0000/0.00": Como solo se usó un hilo, la distribución de eventos es uniforme.

oltp_insert

```
root@Cliente:/home/alda# sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_insert run
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Initializing worker threads...

Threads started!

SQL statistics:
    queries performed:
        read:                            0
        write:                           1051
        other:                           0
        total:                           1051
    transactions:                        1051   (209.87 per sec.)
    queries:                             1051   (209.87 per sec.)
    ignored errors:                      0      (0.00 per sec.)
    reconnects:                          0      (0.00 per sec.)

General statistics:
    total time:                          5.0034s
    total number of events:              1051

Latency (ms):
         min:                                    1.87
         avg:                                    4.75
         max:                                   13.58
         95th percentile:                        9.06
         sum:                                 4994.95

Threads fairness:
    events (avg/stddev):           1051.0000/0.00
    execution time (avg/stddev):   4.9949/0.00
```

Resultados de la prueba:

- "queries performed: write: 1051": Se realizaron 1051 operaciones de escritura (inserciones) en la base de datos.
- "transactions: 1051 (209.87 per sec.)": Se completaron 1051 transacciones, con una tasa de 209.87 transacciones por segundo.
- "total time: 5.0034s": La prueba duró aproximadamente 5 segundos.
- "Latency (ms): avg: 4.75": La latencia promedio para las operaciones fue de 4.75 milisegundos.
- "Threads fairness: events (avg/stddev): 1051.0000/0.00": Como solo se usó un hilo, la distribución de eventos es uniforme.

oltp_point_select

```
sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0
oltp_point_select prepare
```

```
sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql
--mysql-user=root --events=0 oltp_point_select run
```

oltp_read_only

```
sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0
oltp_read_only prepare
```

```
sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql
--mysql-user=root --events=0 oltp_read_only run
```

```
root@Cliente:/home/alda# sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_point_select run
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Initializing worker threads...

Threads started!

SQL statistics:
    queries performed:
        read:                            117302
        write:                           0
        other:                           0
        total:                           117302
    transactions:                        117302 (23424.29 per sec.)
    queries:                             117302 (23424.29 per sec.)
    ignored errors:                      0      (0.00 per sec.)
    reconnects:                          0      (0.00 per sec.)

General statistics:
    total time:                          5.0014s
    total number of events:              117302

Latency (ms):
         min:                                    0.02
         avg:                                    0.04
         max:                                    5.75
         95th percentile:                        0.07
         sum:                                 4948.07

Threads fairness:
    events (avg/stddev):           117302.0000/0.00
    execution time (avg/stddev):   4.9481/0.00
```

oltp_read_write

sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0 oltp_read_write prepare

sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_read_write run

```
root@Cliente:/home/alda# sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_read_write run
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Initializing worker threads...

Threads started!

SQL statistics:
    queries performed:
        read:                            4774
        write:                           1070
        other:                           976
        total:                           6820
    transactions:                        341    (67.98 per sec.)
    queries:                             6820   (1359.50 per sec.)
    ignored errors:                      0      (0.00 per sec.)
    reconnects:                          0      (0.00 per sec.)

General statistics:
    total time:                          5.0149s
    total number of events:              341

Latency (ms):
         min:                                    2.63
         avg:                                   14.69
         max:                                   81.10
         95th percentile:                       29.19
         sum:                                 5008.75

Threads fairness:
    events (avg/stddev):           341.0000/0.00
    execution time (avg/stddev):   5.0088/0.00
```

oltp_update_index

sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0 oltp_update_index prepare

sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_update_index run

```
root@Cliente:/home/alda# sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_update_index run
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Initializing worker threads...

Threads started!

SQL statistics:
    queries performed:
        read:                            0
        write:                           1051
        other:                           84
        total:                           1135
    transactions:                        1135   (226.86 per sec.)
    queries:                             1135   (226.86 per sec.)
    ignored errors:                      0      (0.00 per sec.)
    reconnects:                          0      (0.00 per sec.)

General statistics:
    total time:                          5.0015s
    total number of events:              1135

Latency (ms):
         min:                                    0.03
         avg:                                    4.40
         max:                                   12.73
         95th percentile:                        7.98
         sum:                                 4994.64

Threads fairness:
    events (avg/stddev):           1135.0000/0.00
    execution time (avg/stddev):   4.9946/0.00
```

oltp_update_non_index

sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0 oltp_update_non_index prepare

sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_update_non_index run

```
root@Cliente:/home/alda# sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_update_non_index run
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Initializing worker threads...

Threads started!

SQL statistics:
    queries performed:
        read:                            0
        write:                           999
        other:                           83
        total:                           1082
    transactions:                        1082   (215.96 per sec.)
    queries:                             1082   (215.96 per sec.)
    ignored errors:                      0      (0.00 per sec.)
    reconnects:                          0      (0.00 per sec.)

General statistics:
    total time:                          5.0041s
    total number of events:              1082

Latency (ms):
         min:                                    0.05
         avg:                                    4.62
         max:                                   11.78
         95th percentile:                        9.06
         sum:                                 4995.70

Threads fairness:
    events (avg/stddev):           1082.0000/0.00
    execution time (avg/stddev):   4.9957/0.00
```

oltp_write_only

sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0 oltp_write_only prepare

sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_write_only run

```
root@Cliente:/home/alda# sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 oltp_write_only run
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Initializing worker threads...

Threads started!

SQL statistics:
    queries performed:
        read:                            0
        write:                           2195
        other:                           1249
        total:                           3444
    transactions:                        574    (114.39 per sec.)
    queries:                             3444   (686.36 per sec.)
    ignored errors:                      0      (0.00 per sec.)
    reconnects:                          0      (0.00 per sec.)

General statistics:
    total time:                          5.0147s
    total number of events:              574

Latency (ms):
         min:                                    2.55
         avg:                                    8.72
         max:                                   19.00
         95th percentile:                       15.27
         sum:                                 5004.34

Threads fairness:
    events (avg/stddev):           574.0000/0.00
    execution time (avg/stddev):   5.0043/0.00
```

select_random_points

sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0 select_random_points prepare

sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 select_random_points run

```
root@Cliente:/home/alda# sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 select_random_points run
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Initializing worker threads...

Threads started!

SQL statistics:
    queries performed:
        read:                            1359
        write:                           0
        other:                           0
        total:                           1359
    transactions:                        1359   (271.23 per sec.)
    queries:                             1359   (271.23 per sec.)
    ignored errors:                      0      (0.00 per sec.)
    reconnects:                          0      (0.00 per sec.)

General statistics:
    total time:                          5.0030s
    total number of events:              1359

Latency (ms):
         min:                                    0.51
         avg:                                    3.68
         max:                                   14.13
         95th percentile:                        9.56
         sum:                                 4995.79

Threads fairness:
    events (avg/stddev):           1359.0000/0.00
    execution time (avg/stddev):   4.9958/0.00
```

select_random_ranges

```
sysbench --threads=1 --db-driver=mysql --mysql-user=root --events=0
select_random_ranges prepare
```

```
sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql
--mysql-user=root --events=0 select_random_ranges run
```

```
root@Cliente:/home/alda# sysbench --threads=1 --time=5 --rate=0 --db-driver=mysql --mysql-user=root --events=0 select_random_ranges run
sysbench 1.0.20 (using system LuaJIT 2.1.0-beta3)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Initializing worker threads...

Threads started!

SQL statistics:
    queries performed:
        read:                            3494
        write:                           0
        other:                           0
        total:                           3494
    transactions:                        3494   (698.39 per sec.)
    queries:                             3494   (698.39 per sec.)
    ignored errors:                      0      (0.00 per sec.)
    reconnects:                          0      (0.00 per sec.)

General statistics:
    total time:                          5.0012s
    total number of events:              3494

Latency (ms):
         min:                                    0.38
         avg:                                    1.43
         max:                                    7.63
         95th percentile:                        2.97
         sum:                                 4992.29

Threads fairness:
    events (avg/stddev):           3494.0000/0.00
    execution time (avg/stddev):   4.9923/0.00
```

Tarea #999 Crear cuenta de github y registrarse en el programa de github for education