Sysbench on Mysql5.7

今回はSysbenchのベンチマークテストをご紹介、テスト対象はMysql5.7とMysql5.8です

概要

本文章はSysbenchでMysqlの性能測定をご紹介します。

1 Sysbech環境を準備する

2 Sysbench性能テスト

3 注意事項

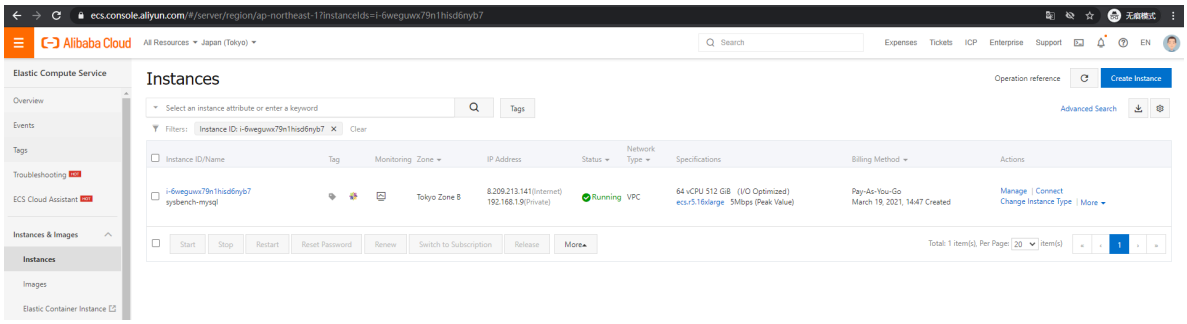
1 Sysbech環境を準備する

SysBenchとはよくデータベース、ファイルシステムやCPU、メモリなどシステムのベンチマークを行うソフトウェアです。

1-1 Sysbechインストール

1) ECSインスタンスを作成する

```
ECS:
Specifications: 64 vCPU 512 GiB ecs.r5.16xlarge
OS: CentOS  7.7 64-bit
```



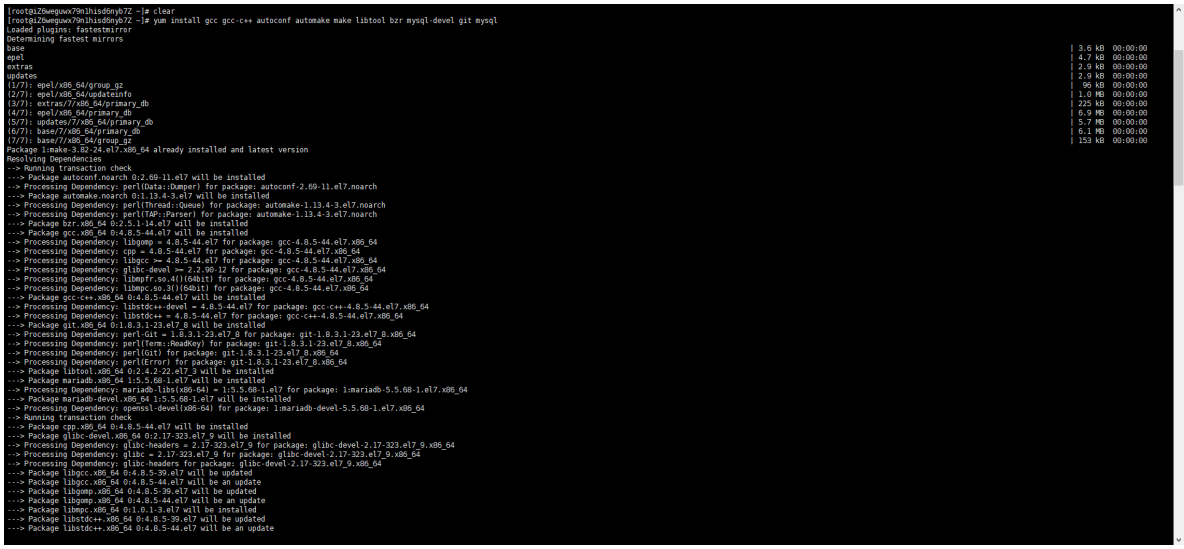
2) Sysbenchをインストールする

①以下のコマンドでSysbenchインストールが行えます。

```
# yum install gcc gcc-c++ autoconf automake make libtool bzr mysql-devel git
mysql
```

```
[root@iZ6weguwx79n1hisd6nyb7Z ~]# yum install gcc gcc-c++ autoconf automake make
libtool bzr mysql-devel git mysql
Loaded plugins: fastestmirror
Determining fastest mirrors
```

```
base


      | 3.6 kB  00:00:00
epel


      | 4.7 kB  00:00:00
extras


      | 2.9 kB  00:00:00
updates


       | 2.9 kB  00:00:00
(1/7): epel/x86_64/group_gz


       |  96 kB  00:00:00
......
Installed:
  autoconf.noarch 0:2.69-11.el7          automake.noarch 0:1.13.4-3.el7
bzr.x86_64 0:2.5.1-14.el7    gcc.x86_64 0:4.8.5-44.el7    gcc-c++.x86_64
0:4.8.5-44.el7    git.x86_64 0:1.8.3.1-23.el7_8    libtool.x86_64 0:2.4.2-
22.el7_3    mariadb.x86_64 1:5.5.68-1.el7
  mariadb-devel.x86_64 1:5.5.68-1.el7

Dependency Installed:
  cpp.x86_64 0:4.8.5-44.el7                   glibc-devel.x86_64 0:2.17-
323.el7_9       glibc-headers.x86_64 0:2.17-323.el7_9      kernel-headers.x86_64
0:3.10.0-1160.15.2.el7     keyutils-libs-devel.x86_64 0:1.5.8-3.el7     krb5-
devel.x86_64 0:1.15.1-50.el7
  libcom_err-devel.x86_64 0:1.42.9-19.el7     libkadm5.x86_64 0:1.15.1-50.el7
       libmpc.x86_64 0:1.0.1-3.el7                libselinux-devel.x86_64
0:2.5-15.el7             libsepol-devel.x86_64 0:2.5-10.el7           libstdc++-
devel.x86_64 0:4.8.5-44.el7
  libverto-devel.x86_64 0:0.2.5-4.el7         mpfr.x86_64 0:3.1.1-4.el7
       openssl-devel.x86_64 1:1.0.2k-21.el7_9     pcre-devel.x86_64 0:8.32-
17.el7                  perl-Data-Dumper.x86_64 0:2.145-3.el7        perl-
Error.noarch 1:0.17020-2.el7
  perl-Git.noarch 0:1.8.3.1-23.el7_8          perl-TermReadKey.x86_64 0:2.30-
20.el7     perl-Test-Harness.noarch 0:3.28-3.el7      perl-Thread-Queue.noarch
0:3.02-2.el7            zlib-devel.x86_64 0:1.2.7-19.el7_9

Dependency Updated:
  e2fsprogs.x86_64 0:1.42.9-19.el7    e2fsprogs-libs.x86_64 0:1.42.9-19.el7
glibc.x86_64 0:2.17-323.el7_9            glibc-common.x86_64 0:2.17-323.el7_9
krb5-libs.x86_64 0:1.15.1-50.el7    libcom_err.x86_64 0:1.42.9-19.el7
libgcc.x86_64 0:4.8.5-44.el7
  libgomp.x86_64 0:4.8.5-44.el7       libselinux.x86_64 0:2.5-15.el7
libselinux-python.x86_64 0:2.5-15.el7    libselinux-utils.x86_64 0:2.5-15.el7
libss.x86_64 0:1.42.9-19.el7        libstdc++.x86_64 0:4.8.5-44.el7
mariadb-libs.x86_64 1:5.5.68-1.el7
  nscd.x86_64 0:2.17-323.el7_9        openssl.x86_64 1:1.0.2k-21.el7_9
openssl-libs.x86_64 1:1.0.2k-21.el7_9    zlib.x86_64 0:1.2.7-19.el7_9
Complete!
```



②下記のリンクからSysbenchをダウンロードする

```
# git clone https://github.com/akopytov/sysbench.git
```

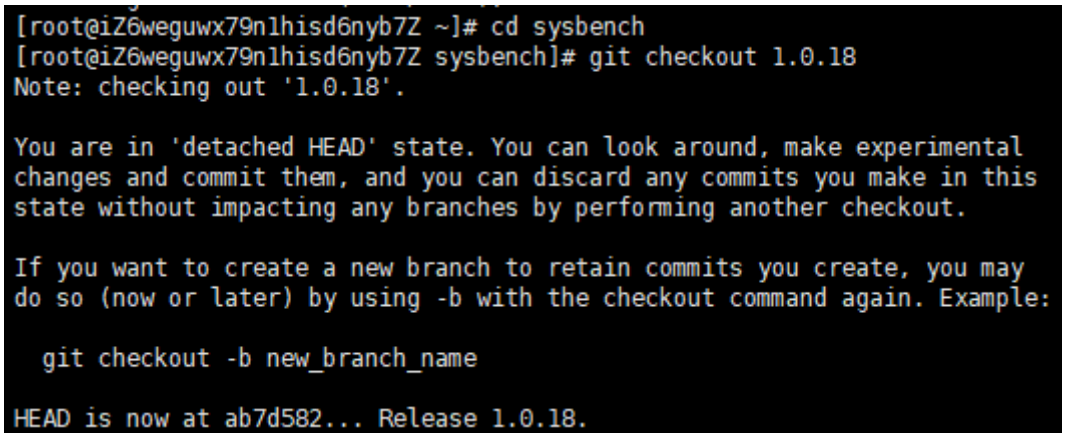
```
[root@iZ6weguwx79n1hisd6nyb7Z ~]# git clone
https://github.com/akopytov/sysbench.git
Cloning into 'sysbench'...
remote: Enumerating objects: 62, done.
remote: Counting objects: 100% (62/62), done.
remote: Compressing objects: 100% (33/33), done.
remote: Total 10220 (delta 28), reused 44 (delta 23), pack-reused 10158
Receiving objects: 100% (10220/10220), 4.23 MiB | 1.38 MiB/s, done.
Resolving deltas: 100% (7326/7326), done.
```

③SysBench 1.0.18バージョンにチェックアウトする

```
# cd sysbench
# git checkout 1.0.18
```

```
[root@iZ6weguwx79n1hisd6nyb7Z ~]# cd sysbench
[root@iZ6weguwx79n1hisd6nyb7Z sysbench]# git checkout 1.0.18
Note: checking out '1.0.18'.

You are in 'detached HEAD' state. You can look around, make experimental
```

```
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by performing another checkout.

If you want to create a new branch to retain commits you create, you may
do so (now or later) by using -b with the checkout command again. Example:

  git checkout -b new_branch_name

HEAD is now at ab7d582... Release 1.0.18.
```



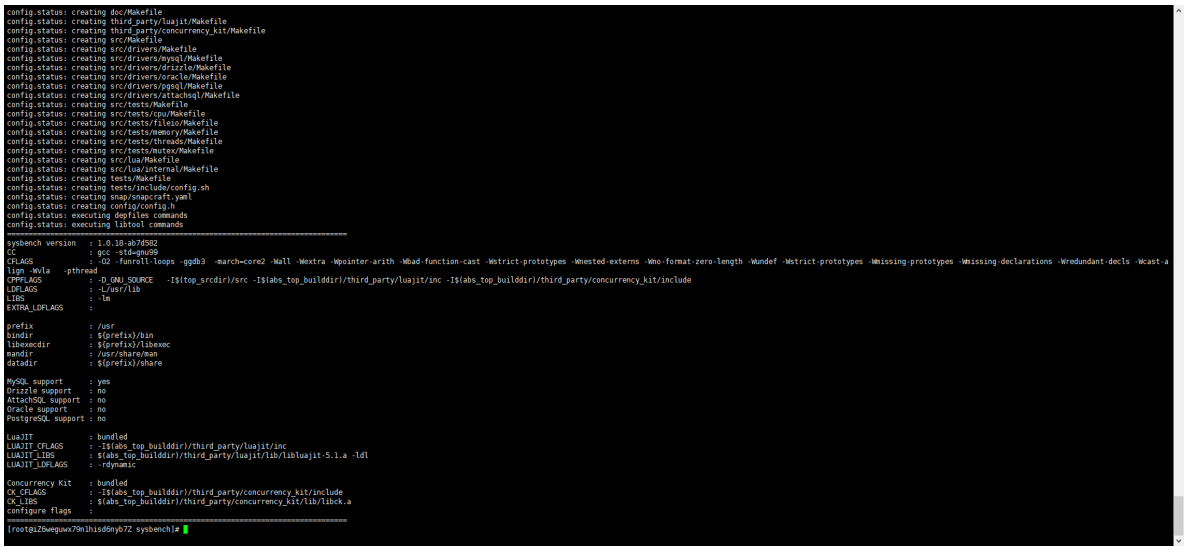
④autogen.shを実行します

```
# ./autogen.sh
# ./configure --prefix=/usr --mandir=/usr/share/man
```

```
[root@iZ6weguwx79n1hisd6nyb7Z sysbench]# ./autogen.sh
./autogen.sh: running `libtoolize --copy --force'
libtoolize: putting auxiliary files in AC_CONFIG_AUX_DIR, `config'.
libtoolize: copying file `config/ltmain.sh'
libtoolize: putting macros in AC_CONFIG_MACRO_DIR, `m4'.
libtoolize: copying file `m4/libtool.m4'
libtoolize: copying file `m4/ltoptions.m4'
libtoolize: copying file `m4/ltsugar.m4'
libtoolize: copying file `m4/ltversion.m4'
libtoolize: copying file `m4/lt~obsolete.m4'
./autogen.sh: running `aclocal -I m4'
./autogen.sh: running `autoheader'
./autogen.sh: running `automake -c --foreign --add-missing'
configure.ac:59: installing 'config/ar-lib'
configure.ac:45: installing 'config/compile'
configure.ac:27: installing 'config/config.guess'
configure.ac:27: installing 'config/config.sub'
configure.ac:32: installing 'config/install-sh'
configure.ac:32: installing 'config/missing'
src/Makefile.am: installing 'config/depcomp'
parallel-tests: installing 'config/test-driver'
./autogen.sh: running `autoconf'
Libtoolized with: libtoolize (GNU libtool) 2.4.2
Automade with: automake (GNU automake) 1.13.4
Configured with: autoconf (GNU Autoconf) 2.69
[root@iZ6weguwx79n1hisd6nyb7Z sysbench]# ./configure --prefix=/usr --
mandir=/usr/share/man
checking build system type... x86_64-unknown-linux-gnu
checking host system type... x86_64-unknown-linux-gnu
```

```
checking target system type... x86_64-unknown-linux-gnu
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a thread-safe mkdir -p... /usr/bin/mkdir -p
......
config.status: executing libtool commands
================================================================================
sysbench version   : 1.0.18-ab7d582
CC                 : gcc -std=gnu99
CFLAGS             : -O2 -funroll-loops -ggdb3  -march=core2 -Wall -Wextra -
Wpointer-arith -Wbad-function-cast -Wstrict-prototypes -Wnested-externs -Wno-
format-zero-length -Wundef -Wstrict-prototypes -Wmissing-prototypes -Wmissing-
declarations -Wredundant-decls -Wcast-align -Wvla   -pthread
CPPFLAGS           : -D_GNU_SOURCE   -I$(top_srcdir)/src -
I$(abs_top_builddir)/third_party/luajit/inc -
I$(abs_top_builddir)/third_party/concurrency_kit/include
LDFLAGS            : -L/usr/lib
LIBS               : -lm
EXTRA_LDFLAGS      :

prefix             : /usr
bindir             : ${prefix}/bin
libexecdir         : ${prefix}/libexec
mandir             : /usr/share/man
datadir            : ${prefix}/share

MySQL support      : yes
Drizzle support    : no
AttachSQL support  : no
Oracle support     : no
PostgreSQL support : no

LuaJIT             : bundled
LUAJIT_CFLAGS      : -I$(abs_top_builddir)/third_party/luajit/inc
LUAJIT_LIBS        : $(abs_top_builddir)/third_party/luajit/lib/libluajit-5.1.a
-ldl
LUAJIT_LDFLAGS     : -rdynamic

Concurrency Kit    : bundled
CK_CFLAGS          : -I$(abs_top_builddir)/third_party/concurrency_kit/include
CK_LIBS            : $(abs_top_builddir)/third_party/concurrency_kit/lib/libck.a
configure flags    :
================================================================================
```

```
[root@iZ6weguwx79n1hisd6nyb7Z sysbench]# ./autogen.sh
./autogen.sh: running `libtoolize --copy --force'
libtoolize: putting auxiliary files in AC_CONFIG_AUX_DIR, `config'.
libtoolize: copying file `config/ltmain.sh'
libtoolize: putting macros in AC_CONFIG_MACRO_DIR, `m4'.
libtoolize: copying file `m4/libtool.m4'
libtoolize: copying file `m4/ltoptions.m4'
libtoolize: copying file `m4/ltsugar.m4'
libtoolize: copying file `m4/ltversion.m4'
libtoolize: copying file `m4/lt~obsolete.m4'
./autogen.sh: running `aclocal -I m4'
./autogen.sh: running `autoheader'
./autogen.sh: running `automake -c --foreign --add-missing'
configure.ac:59: installing 'config/ar-lib'
configure.ac:45: installing 'config/compile'
configure.ac:27: installing 'config/config.guess'
configure.ac:27: installing 'config/config.sub'
configure.ac:32: installing 'config/install-sh'
configure.ac:32: installing 'config/missing'
src/Makefile.am: installing 'config/depcomp'
parallel-tests: installing 'config/test-driver'
./autogen.sh: running `autoconf'
Libtoolized with: libtoolize (GNU libtool) 2.4.2
Automade with: automake (GNU automake) 1.13.4
Configured with: autoconf (GNU Autoconf) 2.69
[root@iZ6weguwx79n1hisd6nyb7Z sysbench]# ./configure --prefix=/usr --mandir=/usr/share/man
checking build system type... x86_64-unknown-linux-gnu
checking host system type... x86_64-unknown-linux-gnu
checking target system type... x86_64-unknown-linux-gnu
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a thread-safe mkdir -p... /usr/bin/mkdir -p
checking for gawk... gawk
checking whether make sets $(MAKE)... yes
checking whether make supports nested variables... yes
checking for style of include used by make... GNU
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking dependency style of gcc... gcc3
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for egrep... /usr/bin/grep -E
checking for ANSI C header files... yes
checking for sys/types.h... yes
checking for sys/stat.h... yes
checking for stdlib.h... yes
```

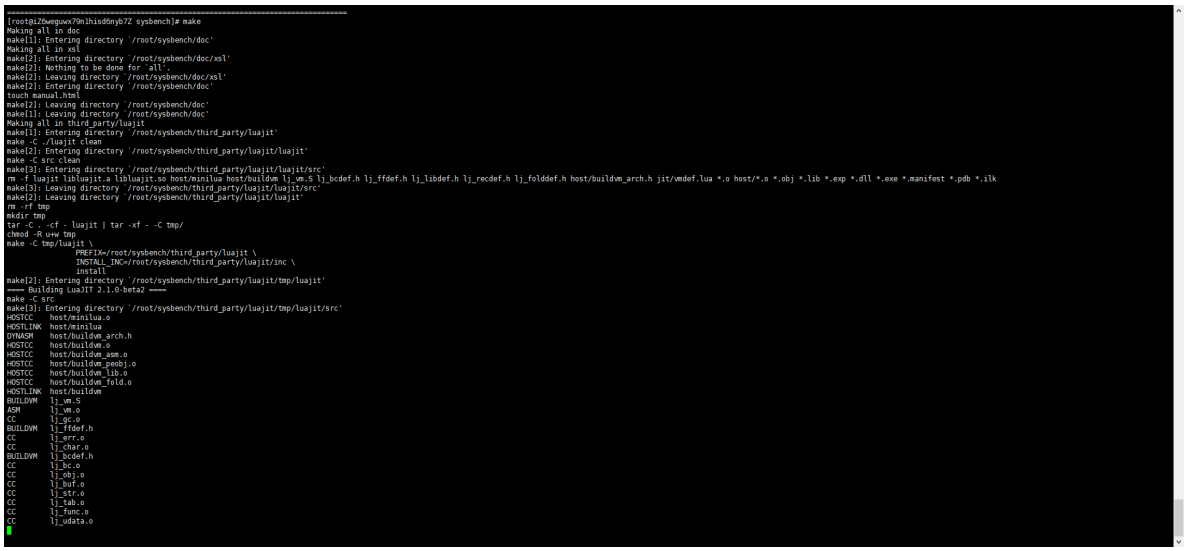


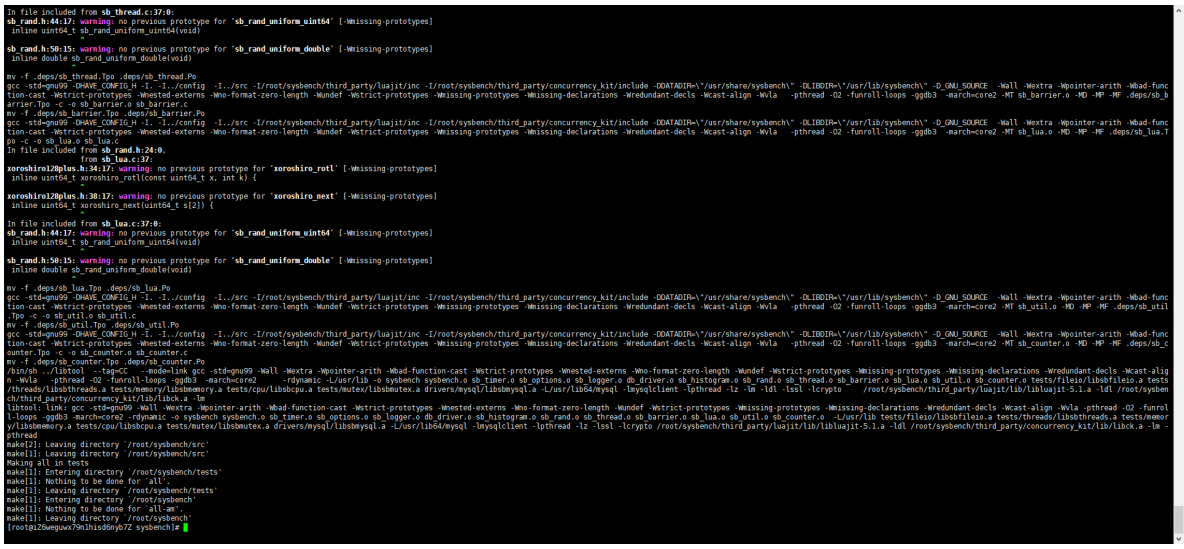
⑤コンパイル

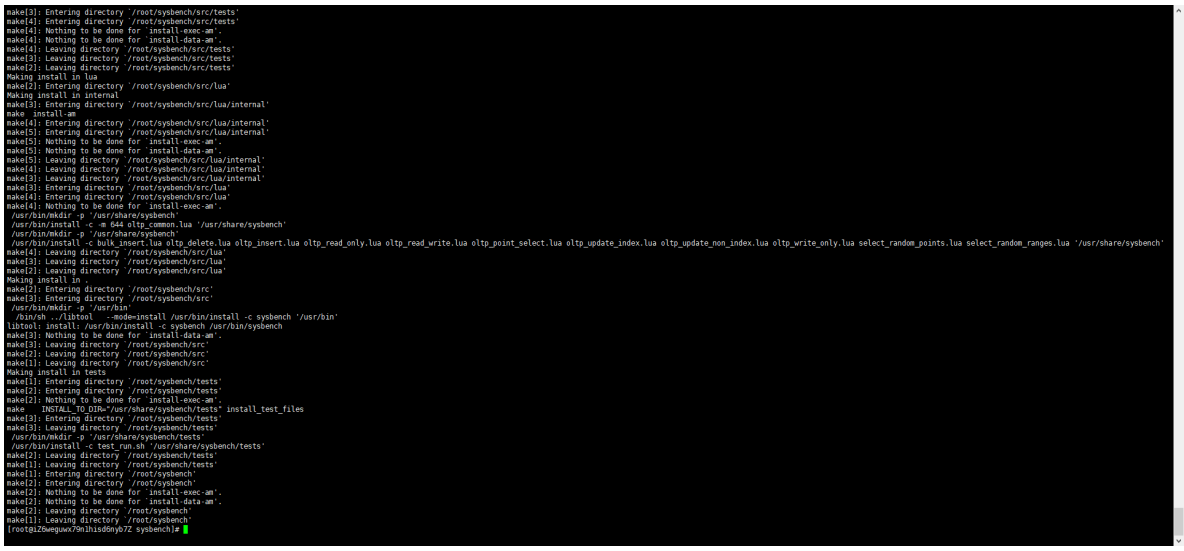
```
# make
# make install
```

```
[root@iZ6weguwx79n1hisd6nyb7Z sysbench]# make
Making all in doc
make[1]: Entering directory `/root/sysbench/doc'
Making all in xsl
```

```
make[2]: Entering directory `/root/sysbench/doc/xsl'
make[2]: Nothing to be done for `all'.
make[2]: Leaving directory `/root/sysbench/doc/xsl'
make[2]: Entering directory `/root/sysbench/doc'
touch manual.html
make[2]: Leaving directory `/root/sysbench/doc'
make[1]: Leaving directory `/root/sysbench/doc'
Making all in third_party/luajit
make[1]: Entering directory `/root/sysbench/third_party/luajit'
make -C ./luajit clean
make[2]: Entering directory `/root/sysbench/third_party/luajit/luajit'
make -C src clean
make[2]: Entering directory `/root/sysbench/third_party/luajit/luajit/src'
省略
完了しました
```



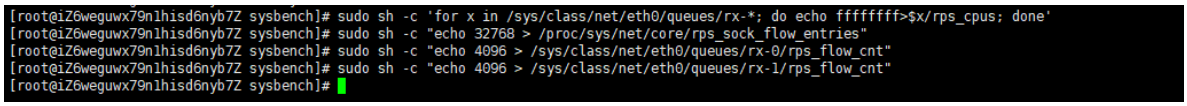




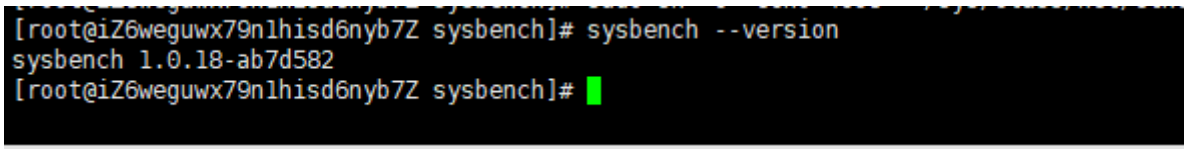
⑥SysBench clientの設定、ffffffffは 32 coresが使われている.

```
sudo sh -c 'for x in /sys/class/net/eth0/queues/rx-*; do echo
ffffffff>$x/rps_cpus; done'
```

```
sudo sh -c "echo 32768 > /proc/sys/net/core/rps_sock_flow_entries"
sudo sh -c "echo 4096 > /sys/class/net/eth0/queues/rx-0/rps_flow_cnt"
sudo sh -c "echo 4096 > /sys/class/net/eth0/queues/rx-1/rps_flow_cnt"
```



⑦インストール完了

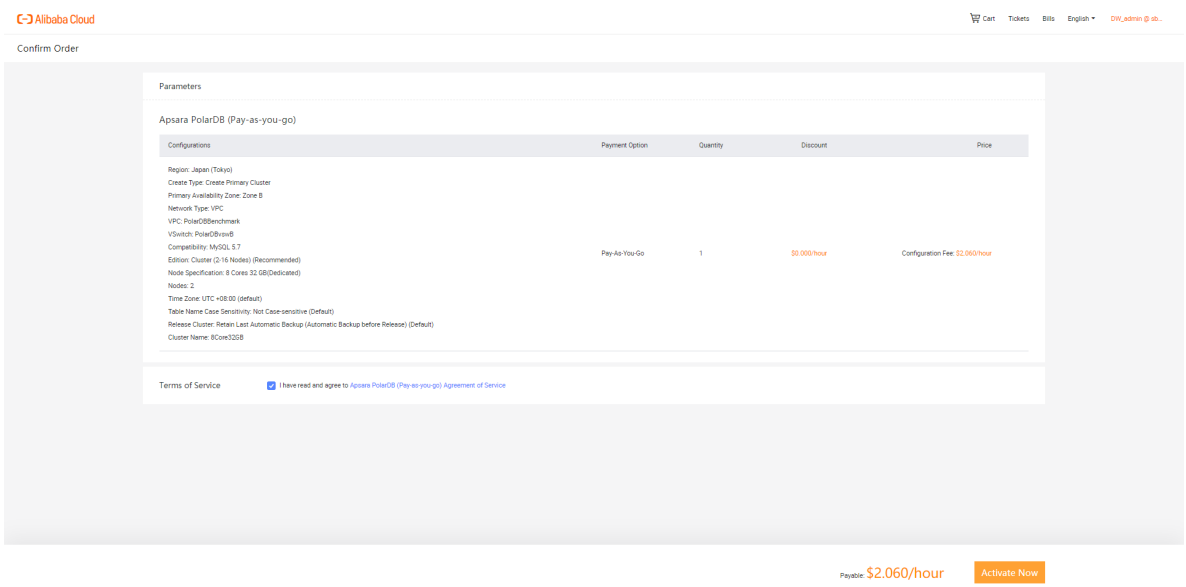


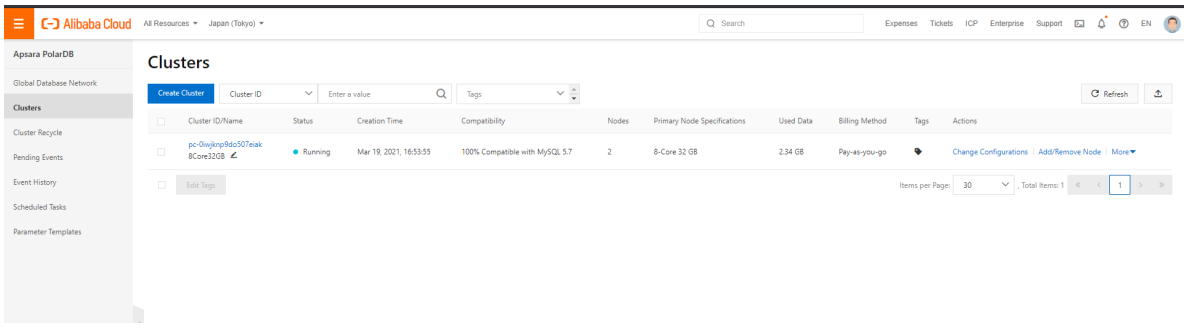
操作ガイドは下記のユーザーガイドもご参照ください
https://www.alibabacloud.com/help/doc-detail/146103.htm?spm=a2c63.l28256.b99.186.188d3784k2PqLH

3) Polardbインスタンスを作成する

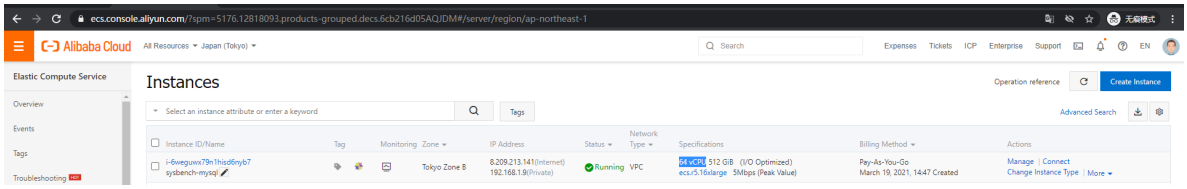
PolarDB:
Mysql5.7 8Core32GB

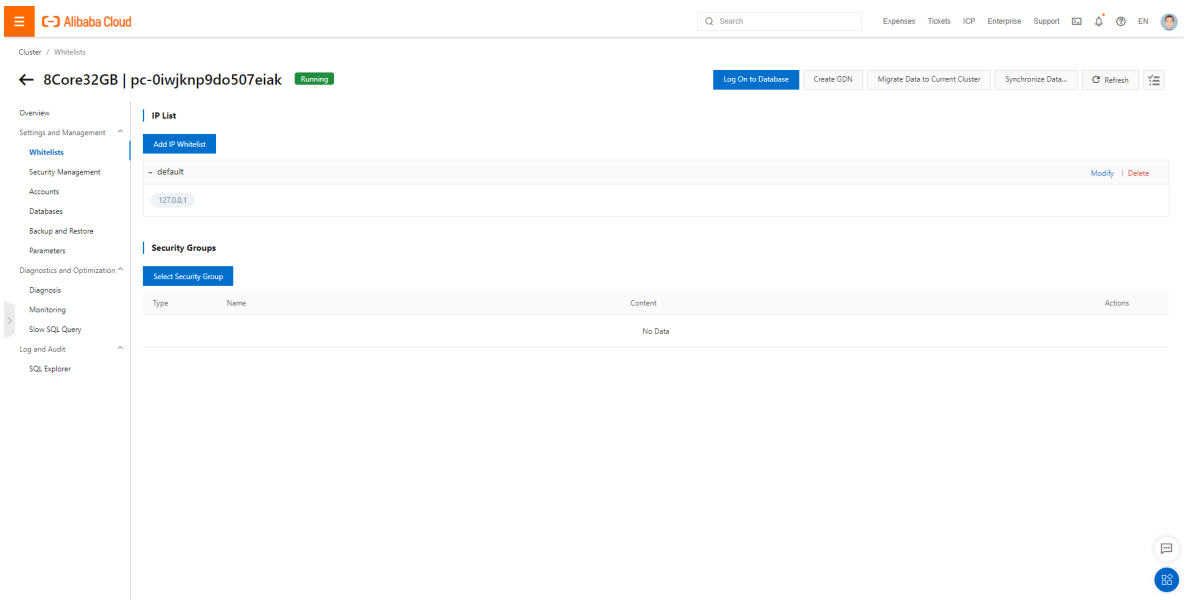
① Polardbインスタンスを作成する

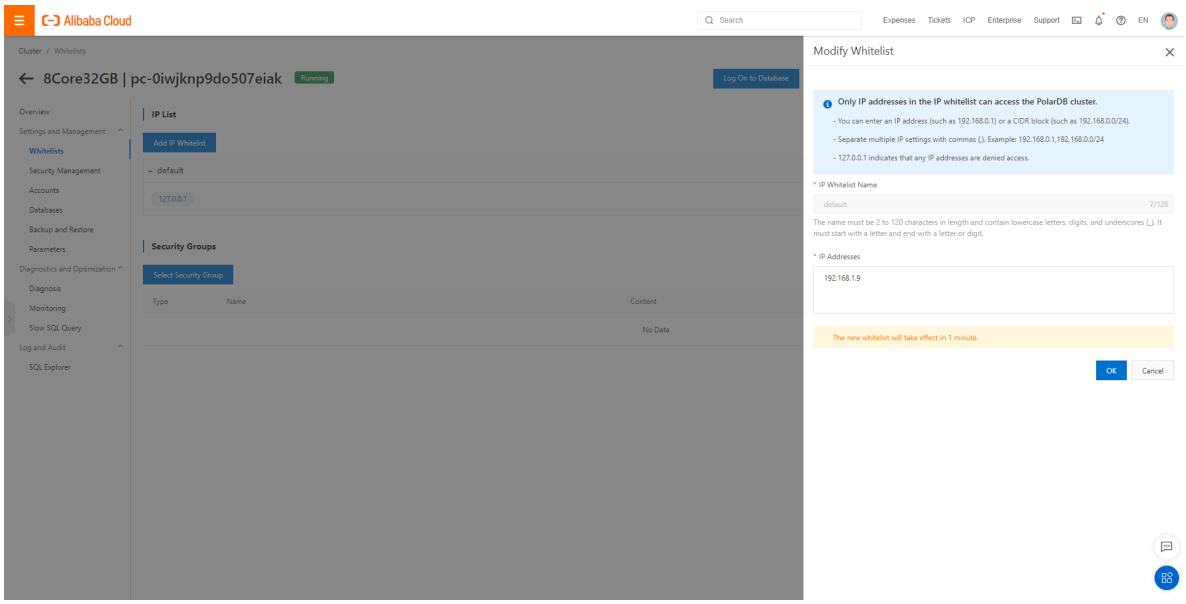


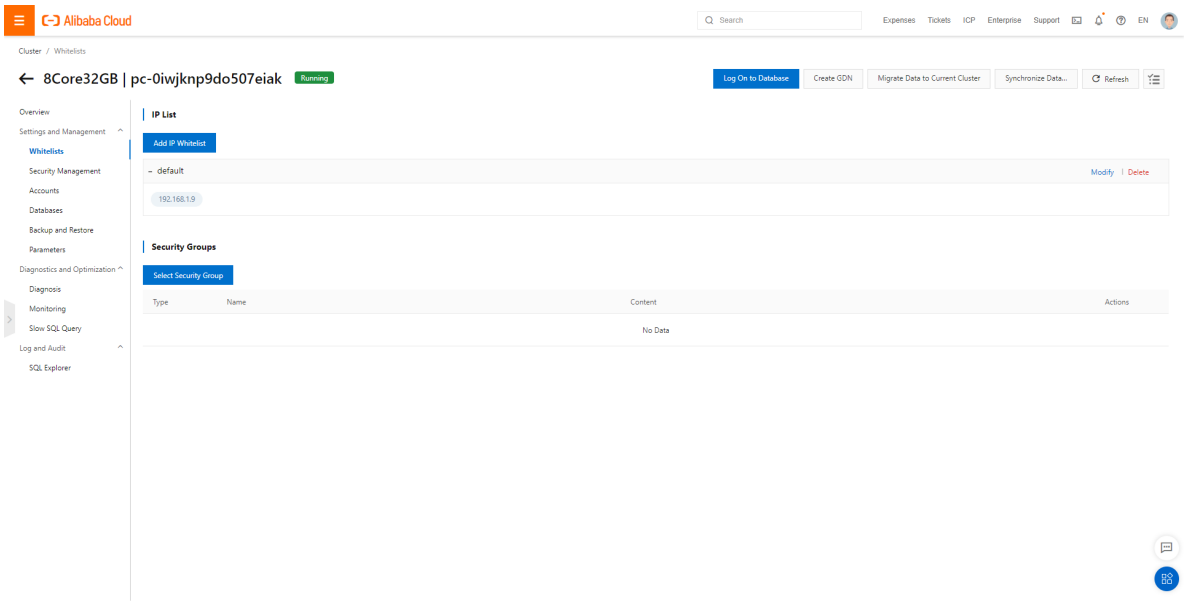


② PolarDBのホワイトリストにECSプライベートIPを追加する

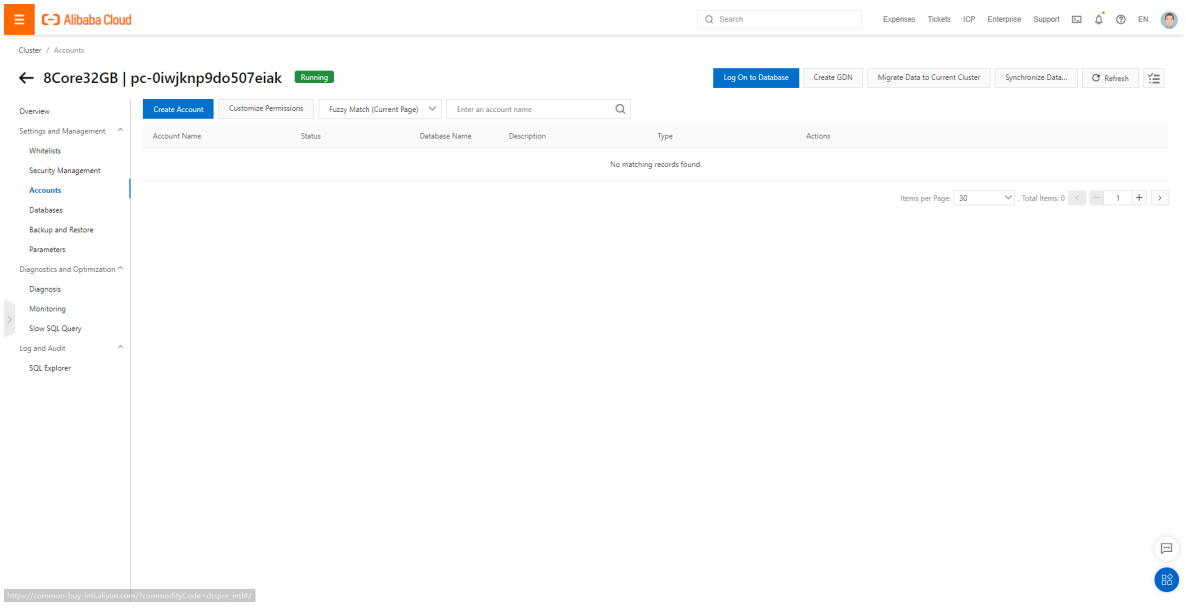


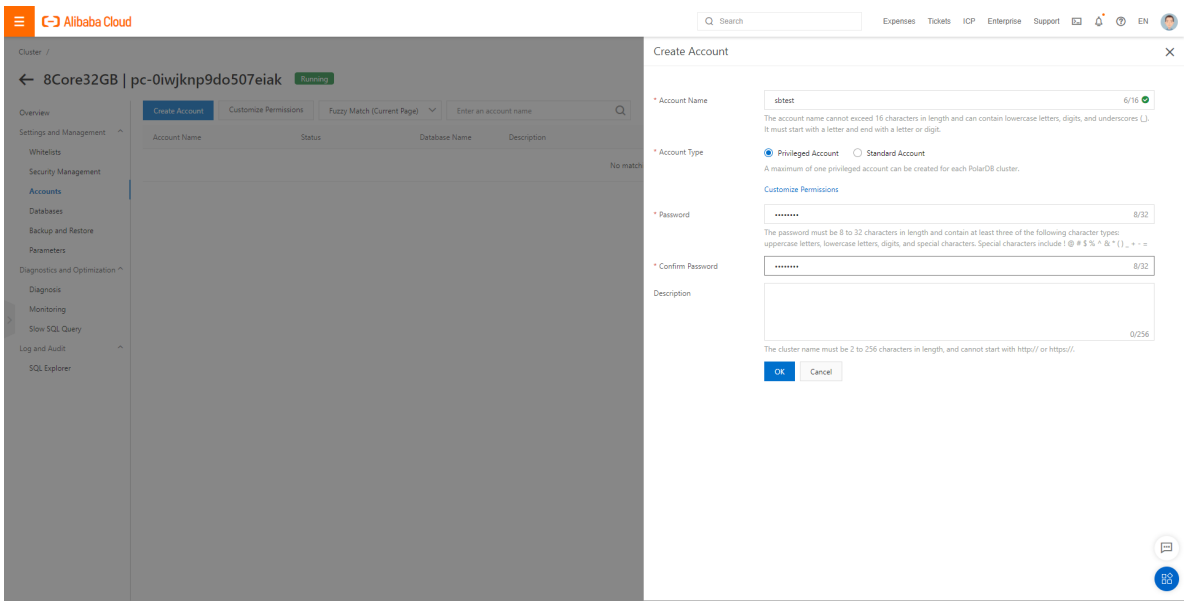


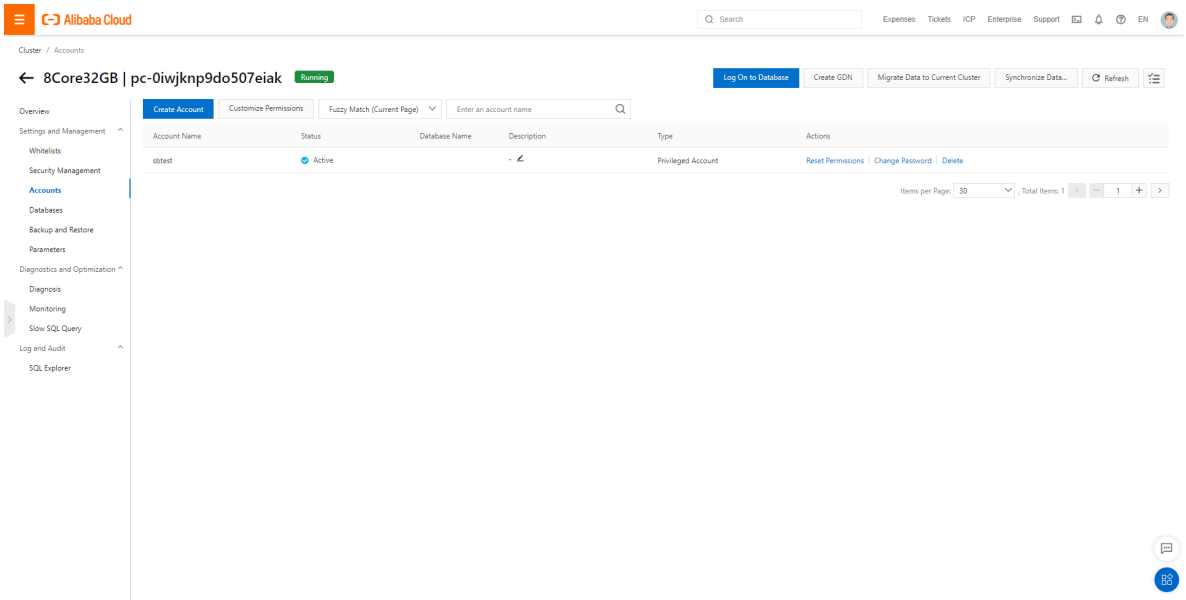




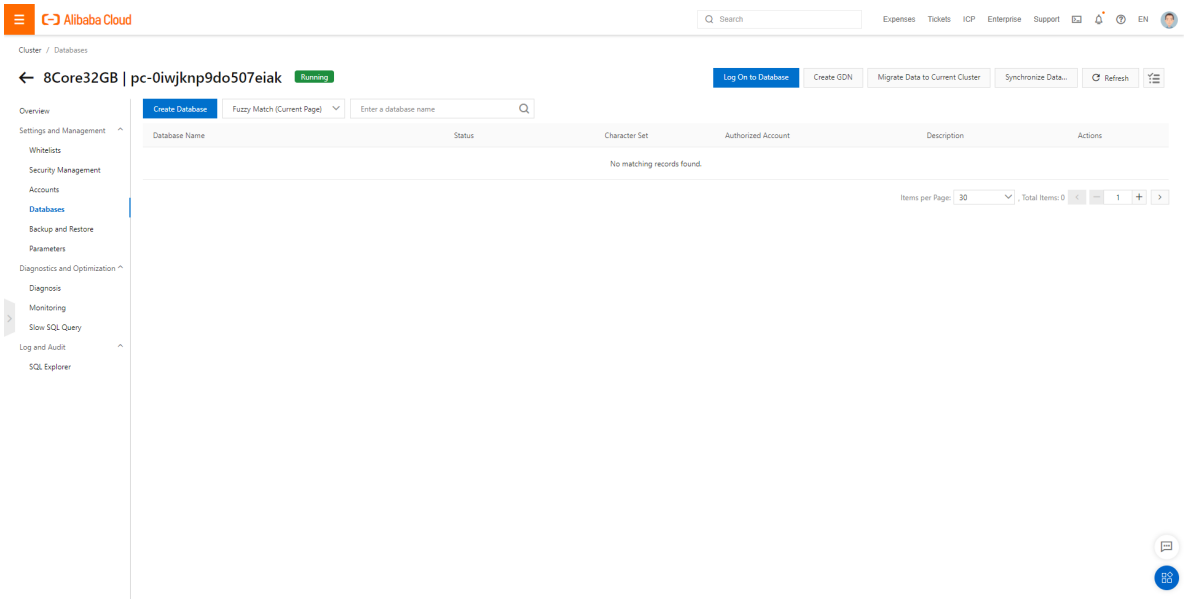
③ PolarDBのアカウントを追加する

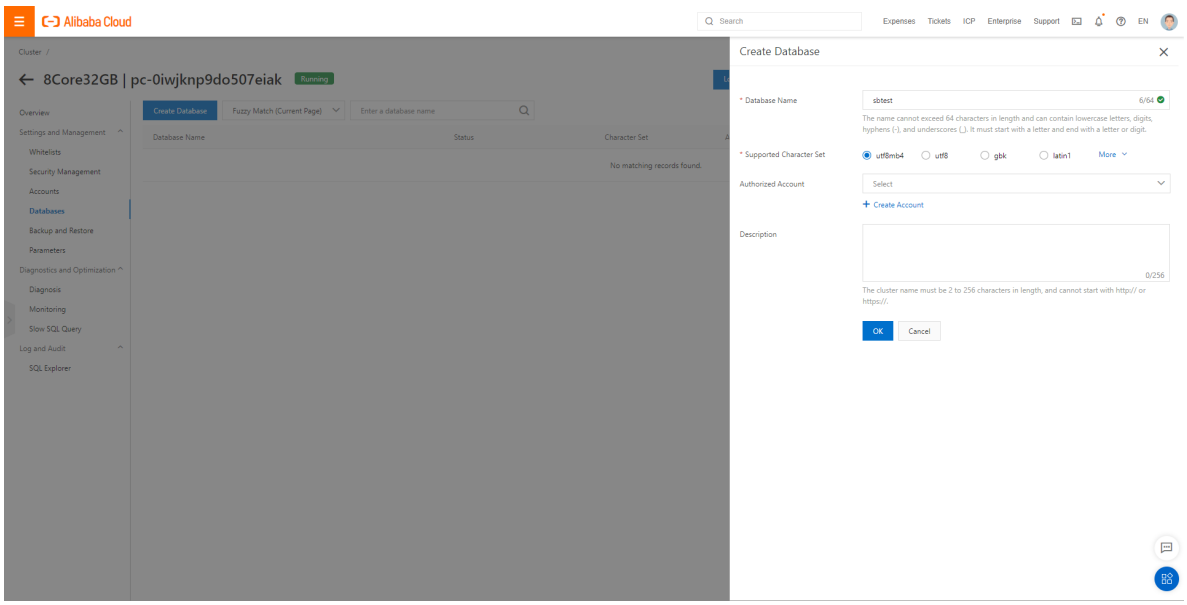


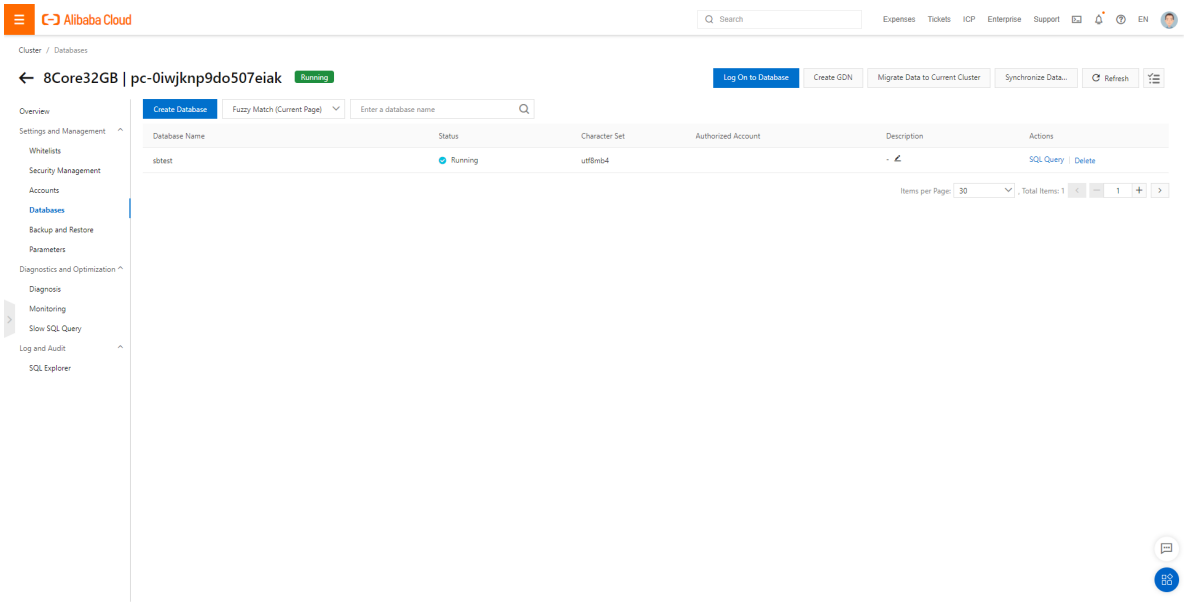




④ テストDBを追加する



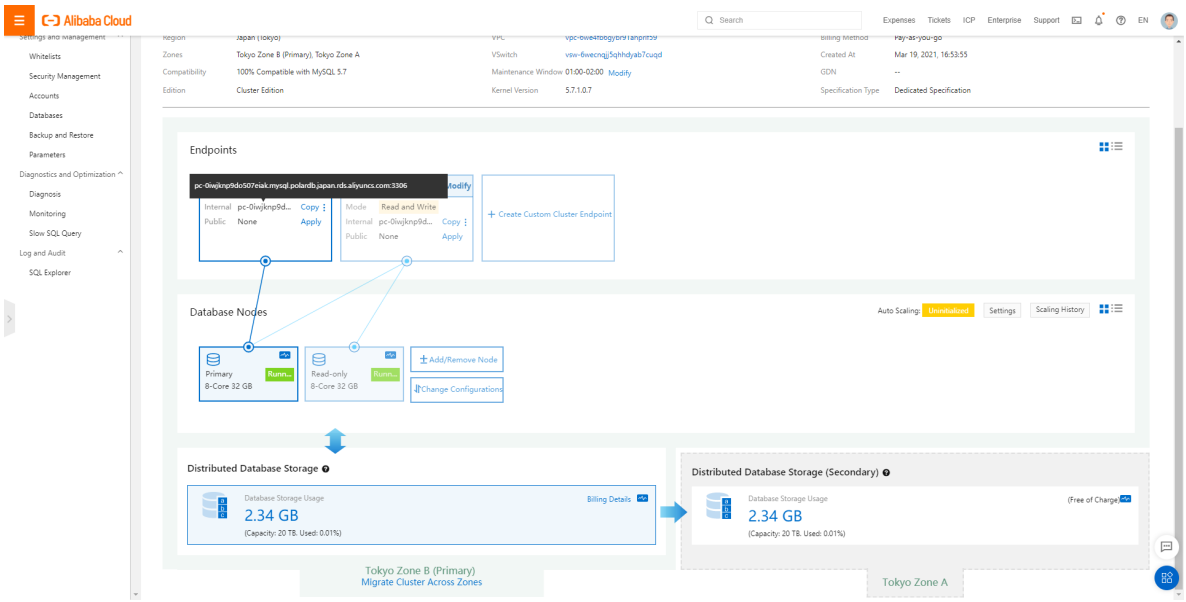




③ Polardbに接続するエンドポイント

プライマリーエンドポイント：データを書き込む際に、プライマリーエンドポイントに接続することをおすすめます

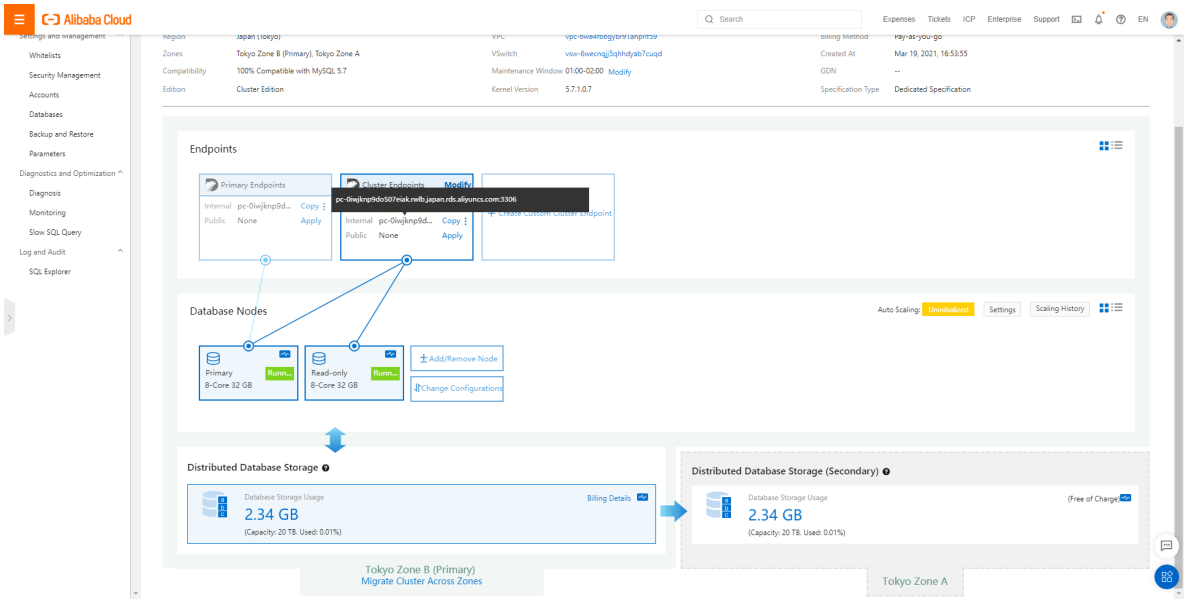
```
pc-0iwjknp9do507eiak.mysql.polardb.japan.rds.aliyuncs.com
```



Read_WriteモードでSysbench実行するとき、クラスターエンドポイントに接続することをおすすめます

クラスターエンドポイント：

```
pc-0iwjknp9do507eiak.rwlb.japan.rds.aliyuncs.com
```



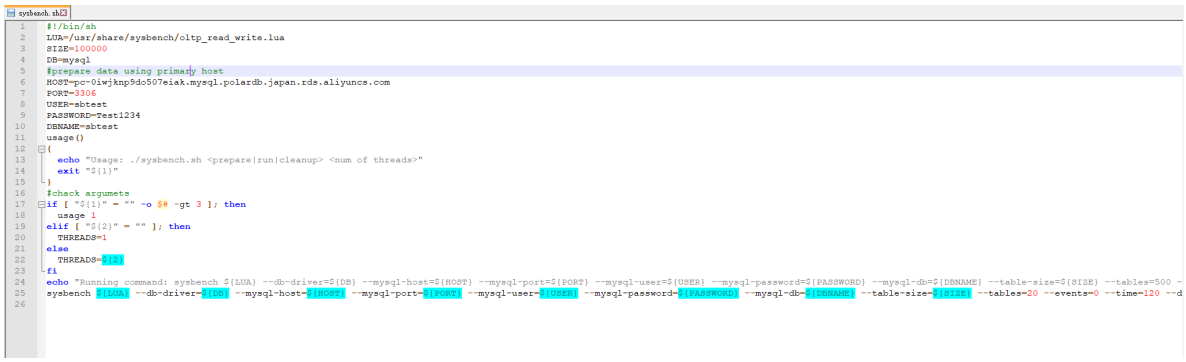
2 Sysbench性能テスト

2-1 Sysbenchデータを用意する

スクリプトファイル（sysbench.shとprepare.sh）を用意する

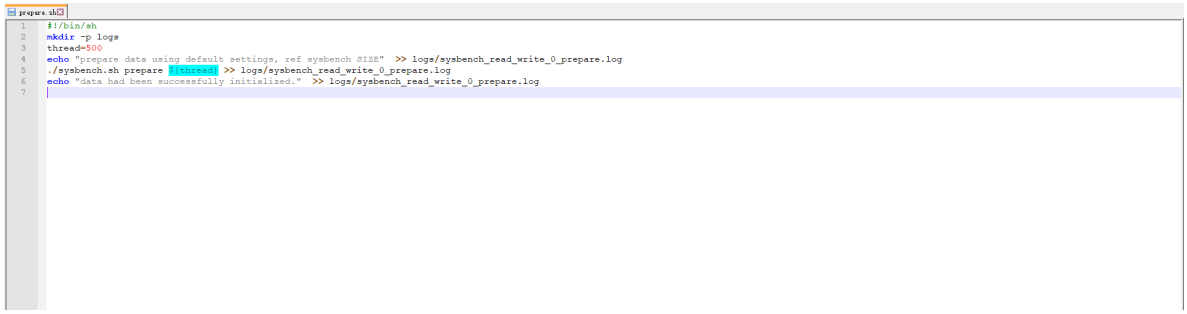
a.sysbench.sh

```
#!/bin/sh
LUA=/usr/share/sysbench/oltp_read_write.lua
SIZE=100000
DB=mysql
#prepare data using primary host
HOST=pc-0iwjknp9do507eiak.mysql.polardb.japan.rds.aliyuncs.com
PORT=3306
USER=sbtest
PASSWORD=Test1234
DBNAME=sbtest
usage()
{
  echo "Usage: ./sysbench.sh <prepare|run|cleanup> <num of threads>"
  exit "${1}"
}
#chack argumets
if [ "${1}" = "" -o $# -gt 3 ]; then
  usage 1
elif [ "${2}" = "" ]; then
  THREADS=1
else
  THREADS=${2}
fi
echo "Running command: sysbench ${LUA} --db-driver=${DB} --mysql-host=${HOST} --
mysql-port=${PORT} --mysql-user=${USER} --mysql-password=${PASSWORD} --mysql-
db=${DBNAME} --table-size=${SIZE} --tables=500 --events=0 --time=60 --db-ps-
mode=disable --percentile=95 --report-interval=1 --threads=${THREADS} ${1}"
sysbench ${LUA} --db-driver=${DB} --mysql-host=${HOST} --mysql-port=${PORT} --
mysql-user=${USER} --mysql-password=${PASSWORD} --mysql-db=${DBNAME} --table-
size=${SIZE} --tables=20 --events=0 --time=120 --db-ps-mode=disable --
percentile=95 --report-interval=1 --threads=${THREADS} ${1}
```



b.prepare.sh

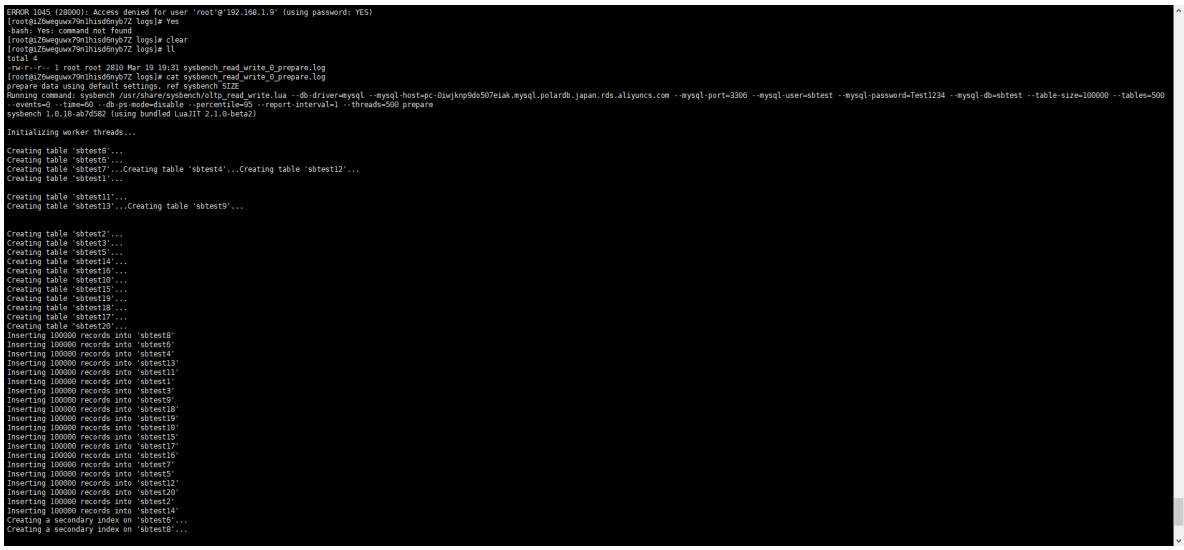
```
#!/bin/sh
mkdir -p logs
thread=500
echo "prepare data using default settings, ref sysbench SIZE"  >>
logs/sysbench_read_write_0_prepare.log
./sysbench.sh prepare ${thread} >> logs/sysbench_read_write_0_prepare.log
echo "data had been successfully initialized."  >>
logs/sysbench_read_write_0_prepare.log
```



2-2 Sysbenchテストのデータを用意する

```
[root@iZ6weguwx79n1hisd6nyb7Z sysbenchprepare]# ll
total 8
-rwxr-xr-x 1 root root  304 Mar 19 19:30 prepare.sh
-rwxr-xr-x 1 root root 1039 Mar 19 19:30 sysbench.sh
[root@iZ6weguwx79n1hisd6nyb7Z sysbenchprepare]# nohup sh prepare.sh 2>&1&
[1] 24489
[root@iZ6weguwx79n1hisd6nyb7Z sysbenchprepare]# nohup: ignoring input and
appending output to ‘nohup.out’
^C
[1]+  Done                    nohup sh prepare.sh 2>&1
[root@iZ6weguwx79n1hisd6nyb7Z sysbenchprepare]# ll
total 12
drwxr-xr-x 2 root root 4096 Mar 19 19:31 logs
-rw------- 1 root root    0 Mar 19 19:31 nohup.out
-rwxr-xr-x 1 root root  304 Mar 19 19:30 prepare.sh
-rwxr-xr-x 1 root root 1039 Mar 19 19:30 sysbench.sh
[root@iZ6weguwx79n1hisd6nyb7Z sysbenchprepare]# cd logs/
[root@iZ6weguwx79n1hisd6nyb7Z logs]# ll
total 4
-rw-r--r-- 1 root root 2810 Mar 19 19:31 sysbench_read_write_0_prepare.log
```

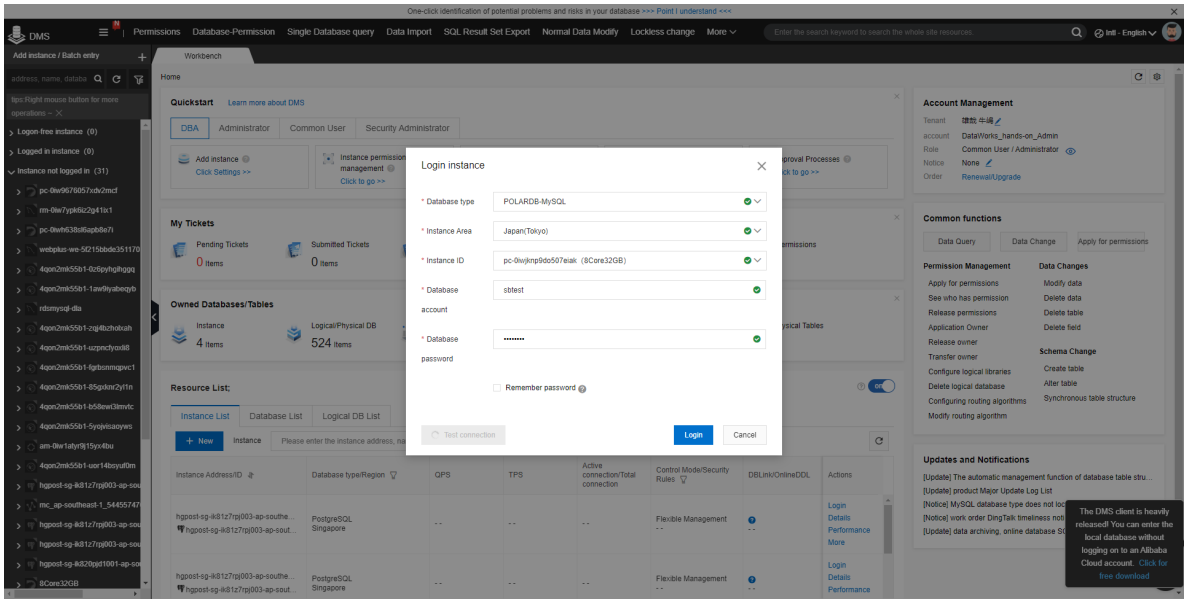
```
[root@iZ6weguwx79n1hisd6nyb7Z logs]# tail -f sysbench_read_write_0_prepare.log
Creating a secondary index on 'sbtest10'...
Creating a secondary index on 'sbtest17'...
Creating a secondary index on 'sbtest16'...
Creating a secondary index on 'sbtest2'...
Creating a secondary index on 'sbtest7'...
Creating a secondary index on 'sbtest12'...
Creating a secondary index on 'sbtest5'...
Creating a secondary index on 'sbtest14'...
Creating a secondary index on 'sbtest20'...
data had been successfully initialized.


data had been successfully initialized.
^C

[root@iZ6weguwx79n1hisd6nyb7Z logs]# ll
total 4
-rw-r--r-- 1 root root 2810 Mar 19 19:31 sysbench_read_write_0_prepare.log
```

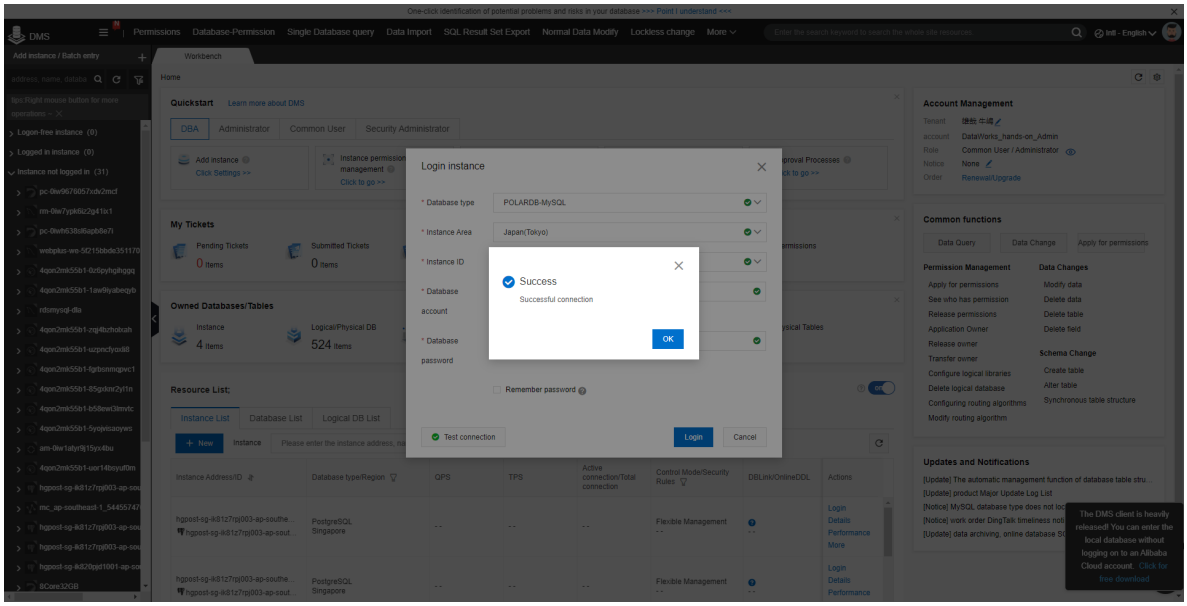


```
[root@iZ6weguwx79n1hisd6nyb7Z sysbenchprepare]# ll
total 8
-rwxr-xr-x 1 root root  304 Mar 19 19:30 prepare.sh
-rwxr-xr-x 1 root root 1039 Mar 19 19:30 sysbench.sh
[root@iZ6weguwx79n1hisd6nyb7Z sysbenchprepare]# nohup sh prepare.sh 2>&1&
[1] 24489
[root@iZ6weguwx79n1hisd6nyb7Z sysbenchprepare]# nohup: ignoring input and appending output to 'nohup.out'
^C
[1]+  Done                    nohup sh prepare.sh 2>&1
[root@iZ6weguwx79n1hisd6nyb7Z sysbenchprepare]# ll
total 12
drwxr-xr-x 2 root root 4096 Mar 19 19:31 logs
-rw------- 1 root root    0 Mar 19 19:31 nohup.out
-rwxr-xr-x 1 root root  304 Mar 19 19:30 prepare.sh
-rwxr-xr-x 1 root root 1039 Mar 19 19:30 sysbench.sh
[root@iZ6weguwx79n1hisd6nyb7Z sysbenchprepare]# cd logs/
[root@iZ6weguwx79n1hisd6nyb7Z logs]# ll
total 4
-rw-r--r-- 1 root root 2810 Mar 19 19:31 sysbench_read_write_0_prepare.log
[root@iZ6weguwx79n1hisd6nyb7Z logs]# tail -f sysbench_read_write_0_prepare.log
Creating a secondary index on 'sbtest10'...
Creating a secondary index on 'sbtest17'...
Creating a secondary index on 'sbtest16'...
Creating a secondary index on 'sbtest2'...
Creating a secondary index on 'sbtest7'...
Creating a secondary index on 'sbtest12'...
Creating a secondary index on 'sbtest5'...
Creating a secondary index on 'sbtest14'...
Creating a secondary index on 'sbtest20'...
Data had been successfully initialized.
```

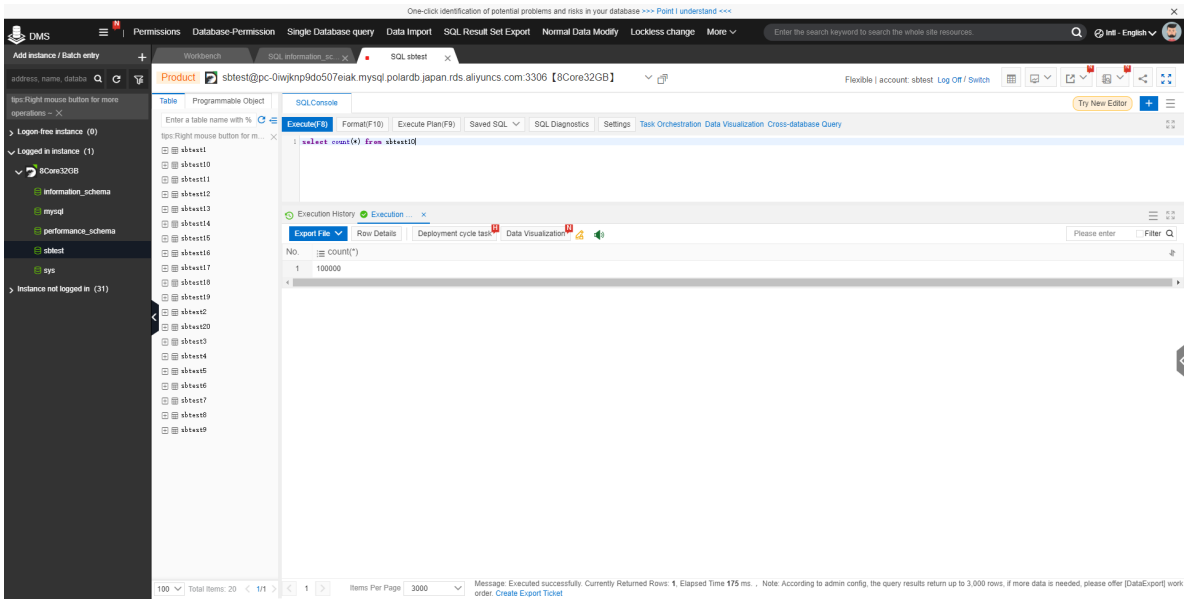
2-3 Sysbenchテストのデータを確認する

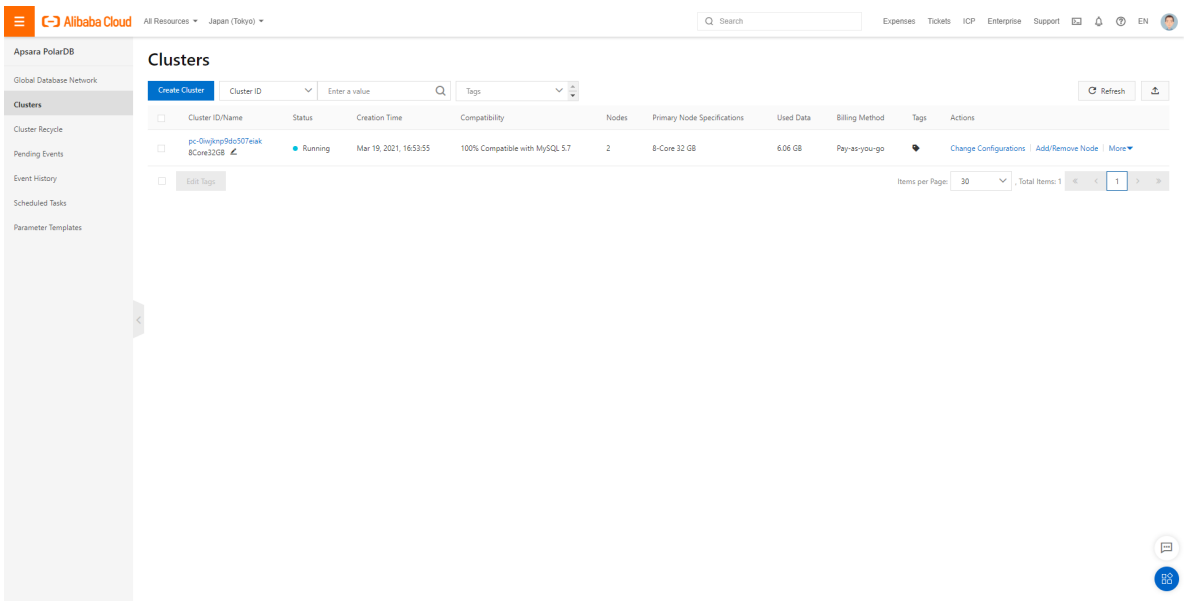
DMSで書き込んだデータを確認する、LinuxからもDBを接続し、確認できる





```
select count(*) from sbtest10;
```





2-4 Sysbenchテストを実行する

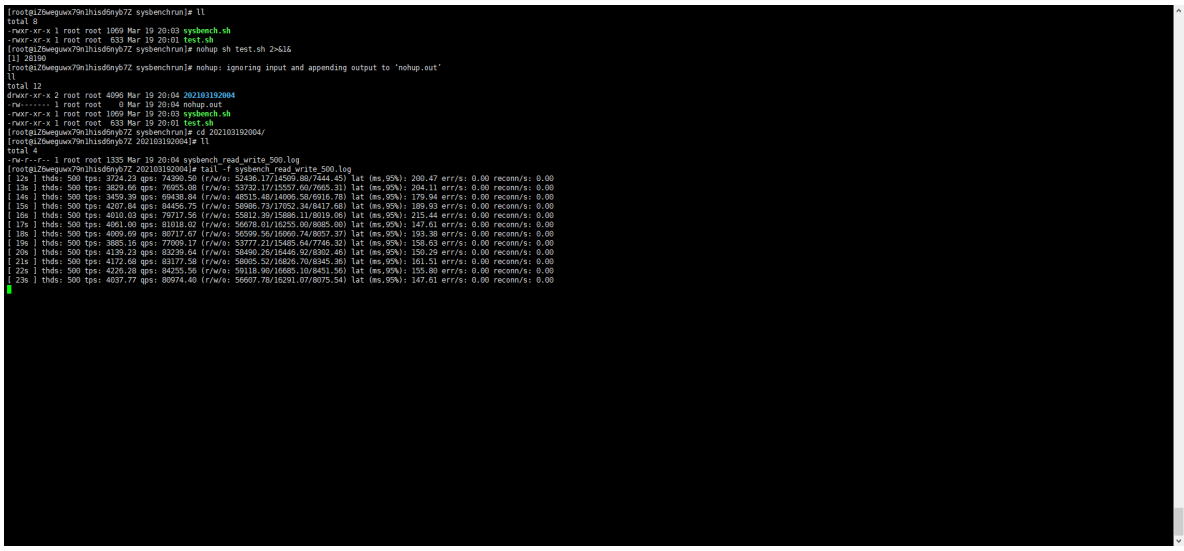
①スクリプトファイル（sysbench.shとtest.sh）を用意する
sysbench.sh

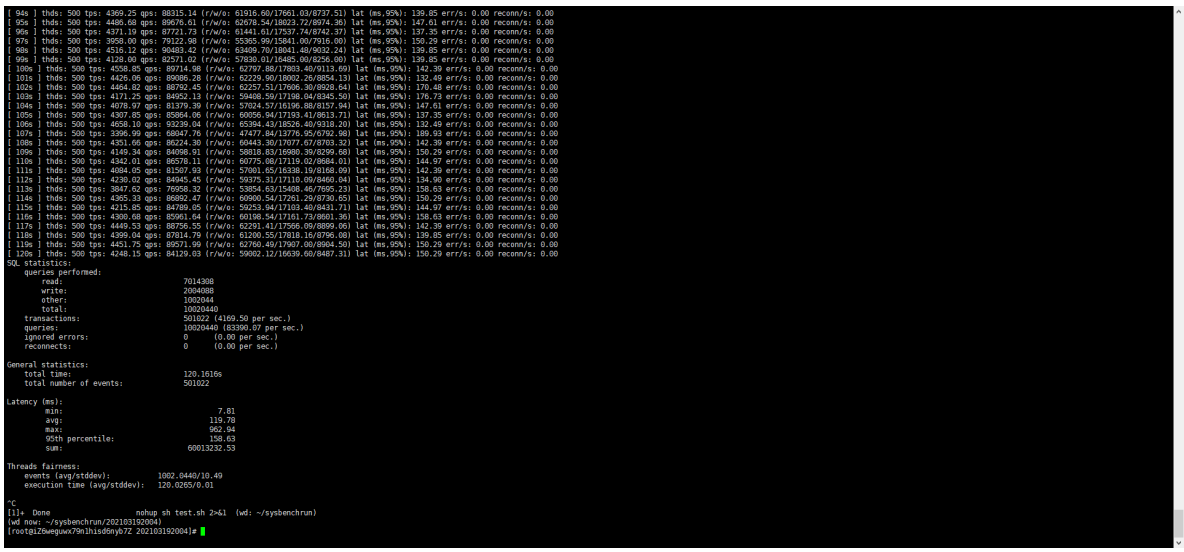
```
#!/bin/sh
LUA=/usr/share/sysbench/oltp_read_write.lua
SIZE=100000
DB=mysql
#read writeモードの場合、クラスターホストで接続する
HOST=pc-0iwjknp9do507eiak.rwlb.japan.rds.aliyuncs.com
PORT=3306
USER=sbtest
PASSWORD=Test1234
DBNAME=sbtest
usage()
{
  echo "Usage: ./sysbench.sh <prepare|run|cleanup> <num of threads>"
```

```
  exit "${1}"
}
#chack argumets
if [ "${1}" = "" -o $# -gt 3 ]; then
  usage 1
elif [ "${2}" = "" ]; then
  THREADS=1
else
  THREADS=${2}
fi
echo "Running command: sysbench ${LUA} --db-driver=${DB} --mysql-host=${HOST} --
mysql-port=${PORT} --mysql-user=${USER} --mysql-password=${PASSWORD} --mysql-
db=${DBNAME} --table-size=${SIZE} --tables=500 --events=0 --time=60 --db-ps-
mode=disable --percentile=95 --report-interval=1 --threads=${THREADS} ${1}"
sysbench ${LUA} --db-driver=${DB} --mysql-host=${HOST} --mysql-port=${PORT} --
mysql-user=${USER} --mysql-password=${PASSWORD} --mysql-db=${DBNAME} --table-
size=${SIZE} --tables=20 --events=0 --time=120 --db-ps-mode=disable --
percentile=95 --report-interval=1 --threads=${THREADS} ${1}
```

test.sh

```
#!/bin/sh
DATE=`date '+%Y%m%d%H%M'`
mkdir $DATE

# thread=500
# echo "prepare data using default settings, ref sysbench SIZE"  >>
${DATE}/sysbench_read_write_main.log
# ./sysbench.sh prepare ${thread} >> ${DATE}/sysbench_read_write_main.log

for thread in 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500
7000 7500 8000 8500 9000 9500 10000
do
    echo "Time: $(date +"%Y%m%d%H%M%S"), now running sysbench with thread of: "
+ ${thread}  >> ${DATE}/sysbench_read_write_${thread}.log
  ./sysbench.sh run ${thread} >> ${DATE}/sysbench_read_write_${thread}.log
done
# echo "cleaning data up."  >> ${DATE}/sysbench_read_write_main.log
# ./sysbench.sh cleanup ${thread} >> ${DATE}/sysbench_read_write_main.log
```





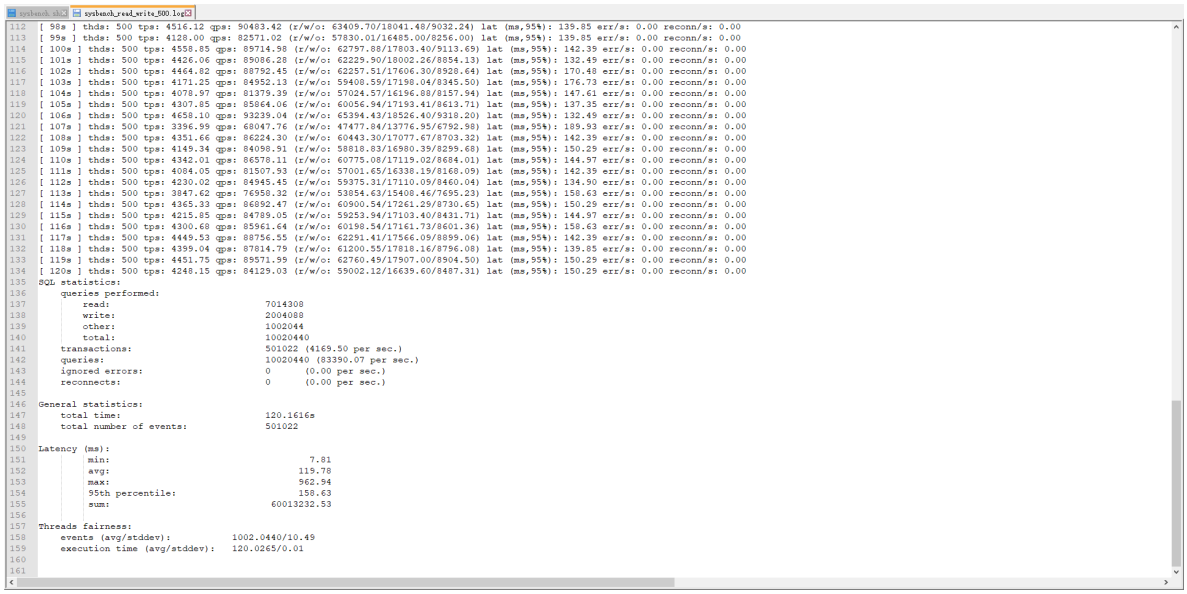
下記用にのSysbenchログファイルが生成されます

sysbench_read_write_500.log

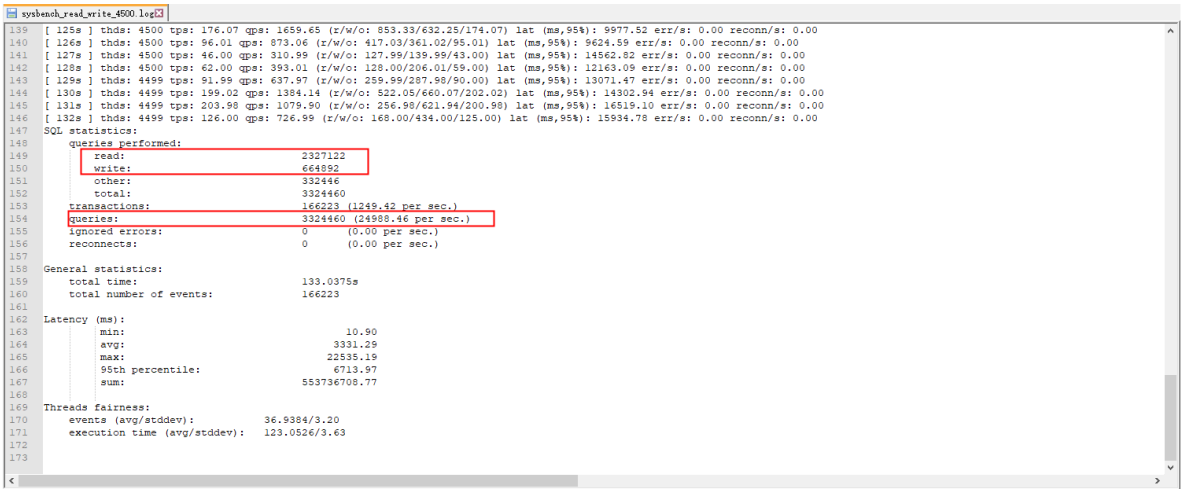
sysbench_read_write_1000.log

sysbench_read_write_1500.log

....



③　Sysbenchテスト性能測定結果を記録する
read/write/qps



※ここまではデータをSIZE=100000に性能測定の手順をご紹介しました。

3 注意事項

1) 問題

threadsが大きくすると、下記のようにメモリが足りないエラーが発生する可能性がある

```
Running the test with following options:
Number of threads: 10000
Report intermediate results every 1 second(s)
Initializing random number generator from current time


Initializing worker threads...

FATAL: `thread_init' function failed: not enough memory
```

2) 解決方法:

LuaのJITを更新する

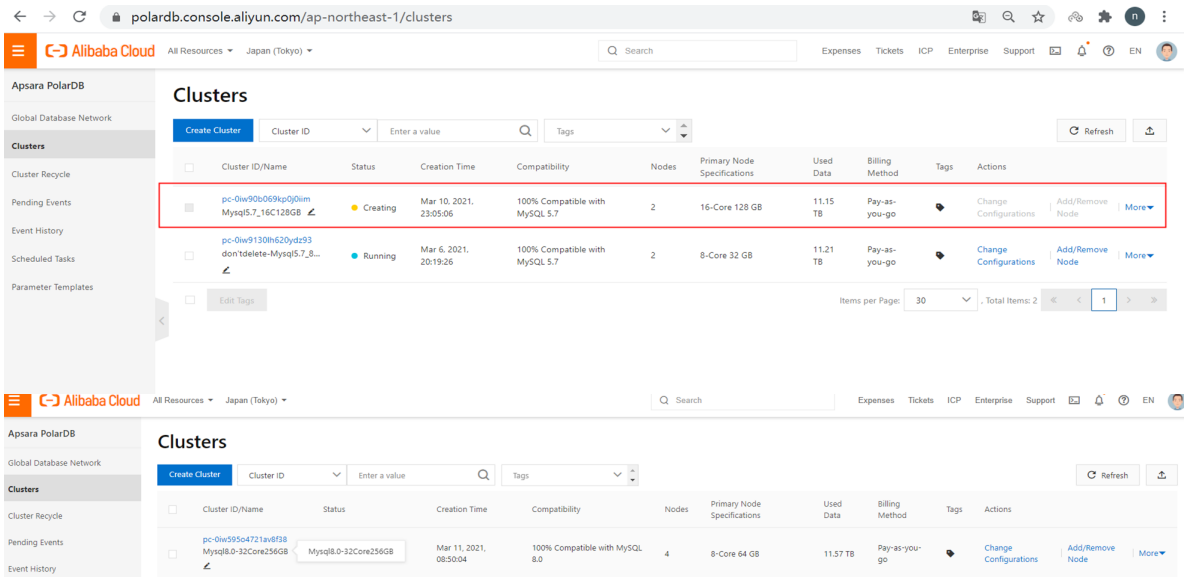
```
akopytovのgitからダウンロード
https://github.com/akopytov/LuaJIT.git

ダウンロードされたLuaJITに入れ替える　sysbench/third_party/luajit/luajit
    - BackUp:　mv sysbench/third_party/luajit/luajit
sysbench/third_party/luajit/backup_of_luajit
    - Replace　LuaJIT mv ${LUAJITダウンロードフォルダ}
sysbench/third_party/luajit/luajit

再度コンパイル
    - cd sysbench/
    - ./autogen.sh
    - ./configure --prefix=/usr --mandir=/usr/share/man
    - make clean
    - make -j 64 && make install
```

このサイトをご参照ください
https://github.com/akopytov/sysbench/issues/120

ここまではSysbenchのテスト方法をご紹介しました。

3) 今回テストするスクリプトファイル

※今回性能測定はSIZE=100000000 table=500 threadが500から10000まで実行しました。このぐらいのデータですとデータ準備する時間が二日間ほどかかります。（Redoログを削除する場合）データがおよそ12TBになる



データPrepare：
①prepare.sh

```
#!/bin/sh
mkdir -p logs
thread=500
echo "prepare data using default settings, ref sysbench SIZE"  >>
logs/sysbench_read_write_0_prepare.log
./sysbench.sh prepare ${thread} >> logs/sysbench_read_write_0_prepare.log
echo "data had been successfully initialized."  >>
logs/sysbench_read_write_0_prepare.log
```

②sysbench.sh

```
#!/bin/sh
LUA=/usr/share/sysbench/oltp_read_write.lua
SIZE=100000000
DB=mysql
#prepare data using primary host
HOST=pc-0iw9130lh620ydz93.mysql.polardb.japan.rds.aliyuncs.com
PORT=3306
USER=sbtest
PASSWORD=Test1234
DBNAME=sbtest
usage()
{
  echo "Usage: ./sysbench.sh <prepare|run|cleanup> <num of threads>"
  exit "${1}"
```

```
}
#chack argumets
if [ "${1}" = "" -o $# -gt 3 ]; then
  usage 1
elif [ "${2}" = "" ]; then
  THREADS=1
else
  THREADS=${2}
fi
echo "Running command: sysbench ${LUA} --db-driver=${DB} --mysql-host=${HOST} --
mysql-port=${PORT} --mysql-user=${USER} --mysql-password=${PASSWORD} --mysql-
db=${DBNAME} --table-size=${SIZE} --tables=500 --events=0 --time=60 --db-ps-
mode=disable --percentile=95 --report-interval=1 --threads=${THREADS} ${1}"
sysbench ${LUA} --db-driver=${DB} --mysql-host=${HOST} --mysql-port=${PORT} --
mysql-user=${USER} --mysql-password=${PASSWORD} --mysql-db=${DBNAME} --table-
size=${SIZE} --tables=20 --events=0 --time=120 --db-ps-mode=disable --
percentile=95 --report-interval=1 --threads=${THREADS} ${1}
```

データを用意するコマンド:

```
nohup sh prepare.sh 2>&1&
```

SysbenchRunを実行する
データは12TBになり、大きいためThreadは最大6500までにしてください
①test.sh

```
#!/bin/sh
DATE=`date '+%Y%m%d%H%M'`
mkdir $DATE

# thread=500
# echo "prepare data using default settings, ref sysbench SIZE"  >>
${DATE}/sysbench_read_write_main.log
# ./sysbench.sh prepare ${thread} >> ${DATE}/sysbench_read_write_main.log

for thread in 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500
7000 7500 8000 8500 9000 9500 10000
do
    echo "Time: $(date +"%Y%m%d%H%M%S"), now running sysbench with thread of: "
+ ${thread}  >> ${DATE}/sysbench_read_write_${thread}.log
  ./sysbench.sh run ${thread} >> ${DATE}/sysbench_read_write_${thread}.log
done
# echo "cleaning data up."  >> ${DATE}/sysbench_read_write_main.log
# ./sysbench.sh cleanup ${thread} >> ${DATE}/sysbench_read_write_main.log
```

②sysbench.sh

```
#!/bin/sh
LUA=/usr/share/sysbench/oltp_read_write.lua
SIZE=100000000
DB=mysql
#HOST=pc-0iw162qaide5441z8.mysql.polardb.japan.rds.aliyuncs.com
```

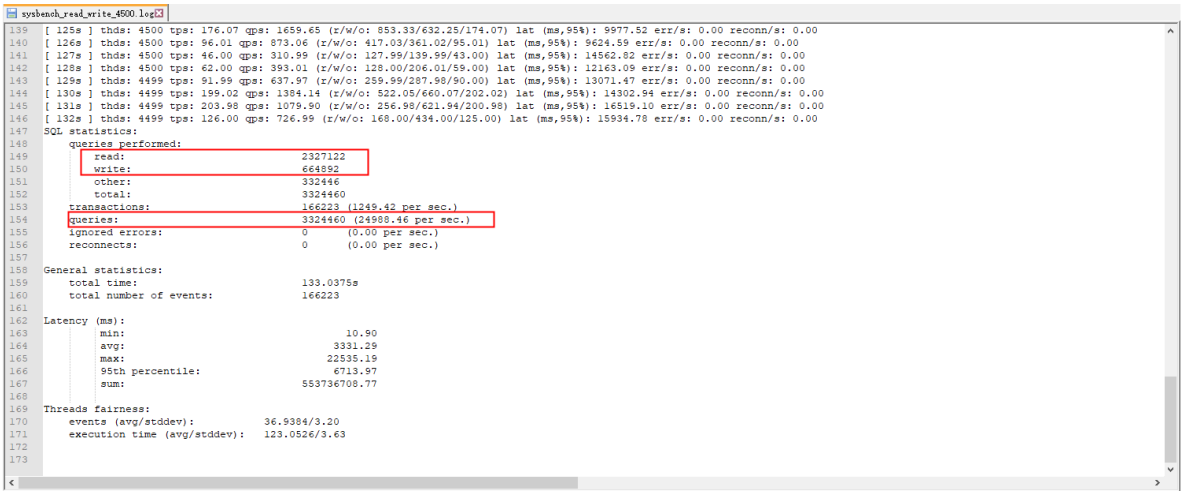
```
HOST=pc-0iw9130lh620ydz93.rwlb.japan.rds.aliyuncs.com
PORT=3306
USER=sbtest
PASSWORD=Test1234
DBNAME=sbtest
usage()
{
  echo "Usage: ./sysbench.sh <prepare|run|cleanup> <num of threads>"
  exit "${1}"
}
#chack argumets
if [ "${1}" = "" -o $# -gt 3 ]; then
  usage 1
elif [ "${2}" = "" ]; then
  THREADS=1
else
  THREADS=${2}
fi
echo "Running command: sysbench ${LUA} --db-driver=${DB} --mysql-host=${HOST} --
mysql-port=${PORT} --mysql-user=${USER} --mysql-password=${PASSWORD} --mysql-
db=${DBNAME} --table-size=${SIZE} --tables=500 --events=0 --time=60 --db-ps-
mode=disable --percentile=95 --report-interval=1 --threads=${THREADS} ${1}"
sysbench ${LUA} --db-driver=${DB} --mysql-host=${HOST} --mysql-port=${PORT} --
mysql-user=${USER} --mysql-password=${PASSWORD} --mysql-db=${DBNAME} --table-
size=${SIZE} --tables=500 --events=0 --time=120 --db-ps-mode=disable --
percentile=95 --report-interval=1 --threads=${THREADS} ${1}
```

③データを実行するコマンド:

```
nohup sh test.sh 2>&1&
```

④ログを確認する

sysbench_read_write_4500.log
read/write/qps



以上です