007. 安装MySQL

一. 环境检查

```
$ sudo dpkg -l | grep mysql
```

二. 环境准备

```
$ sudo apt install build-essential bison libncurses5-dev libssl-dev pkg-config cmake
```

三. 安装

1. 下载源代码

查看当前版本

下载带boost源码的版本即可.

```
$ VERSION=8.0.34
$ wget https://cdn.mysql.com/Downloads/MySQL-8.0/mysql-boost-${VERSION}.tar.gz
```

2. 编译安装

```
$ tar xf mysql-boost-${VERSION}.tar.gz && cd mysql-${VERSION}
# 可以调整数据目录

$ cmake -DCMAKE_INSTALL_PREFIX=/usr/local/mysql \
-DMYSQL_UNIX_ADDR=/var/run/mysqld/mysql.sock \
-DMYSQL_PID_FILE=/var/run/mysqld/mysql.pid \
-DDEFAULT_CHARSET=utf8mb4 \
-DDEFAULT_COLLATION=utf8mb4_general_ci \
-DWITH_EXTRA_CHARSETS=all \
-DWITH_MYISAM_STORAGE_ENGINE=1 \
-DWITH_INNOBASE_STORAGE_ENGINE=1 \
-DWITH_MEMORY_STORAGE_ENGINE=1 \
-DWITH_READLINE=1 \
-DENABLED_LOCAL_INFILE=1 \
-DMYSQL_DATADIR=/data/mysql \
-DMYSQL_USER=mysql \
-DMYSQL_TCP_PORT=3306 \
-DSYSCONFDIR=/etc/mysql \
-DINSTALL_SHAREDIR=share \
-DWITH_DEBUG=0 \
-DWITH_SSL=system \
-DWITH-mysqld-ldflags=-all-static \
-DWITH-client-ldflags=-all-static \
-DWITH_EMBEDDED_SERVER=OFF \
-DWITH_BOOST=./boost \
-DFORCE_INSOURCE_BUILD=ON

# 特别慢
$ make -j $(nproc)

$ sudo make install
```

四. 配置及初始化

1. 配置

```
$ sudo mkdir -pv /etc/mysql
$ sudo vim /etc/mysql/my.cnf

[client]
port    = 3306
socket    = /var/run/mysqld/mysql.sock
skip-binary-as-hex

[mysql]
prompt="\u@devops_db \R:\m:\s [\d]> "
no-auto-rehash

[mysqld]
user    = mysql
port    = 3306
bind_address = 0.0.0.0
basedir    = /usr/local/mysql
datadir    = /data/mysql
socket    = /var/run/mysqld/mysql.sock
pid-file = /var/run/mysqld/mysql.pid
character-set-server = utf8mb4
skip_name_resolve = 1
mysqlx = 0
#若你的MySQL数据库主要运行在境外，请务必根据实际情况调整本参数
default_time_zone = "+8:00"

open_files_limit = 65535
back_log = 1024
max_connections = 5120
max_connect_errors = 1000000
table_open_cache = 1024
table_definition_cache = 1024
table_open_cache_instances = 64
thread_stack = 512K
external-locking = FALSE
max_allowed_packet = 32M
sort_buffer_size = 16M
join_buffer_size = 16M
thread_cache_size = 768
interactive_timeout = 600
wait_timeout = 600
tmp_table_size = 96M
max_heap_table_size = 96M
slow_query_log = 1
log_timestamps = SYSTEM
```

```
slow_query_log_file = /data/mysql_logs/slow.log
log-error = /data/mysql_logs/error.log
long_query_time = 0.1
log_queries_not_using_indexes =1
log_throttle_queries_not_using_indexes = 60
min_examined_row_limit = 100
log_slow_admin_statements = 1
log_slow_replica_statements = 1
server-id = 3306
log-bin = /data/mysql_logs/binlog/binlog
sync_binlog = 1
binlog_cache_size = 4M
max_binlog_cache_size = 2G
max_binlog_size = 1G

#注意：MySQL 8.0开始，binlog_expire_logs_seconds选项也存在的话，会忽略expire_logs_days选项
# expire_logs_days = 30
binlog_expire_logs_seconds = 2592000 # 30天

gtid_mode = on
enforce_gtid_consistency = 1
log_replica_updates
binlog_format = row
binlog_checksum = 1
relay_log_recovery = 1
relay-log-purge = 1
key_buffer_size = 32M
read_buffer_size = 8M
read_rnd_buffer_size = 16M
bulk_insert_buffer_size = 64M
myisam_sort_buffer_size = 128M
myisam_max_sort_file_size = 10G
#myisam_repair_threads = 1
lock_wait_timeout = 3600
explicit_defaults_for_timestamp = 1
innodb_thread_concurrency = 0
innodb_sync_spin_loops = 100
innodb_spin_wait_delay = 30

transaction_isolation = REPEATABLE-READ
#innodb_additional_mem_pool_size = 16M

innodb_buffer_pool_size = 4G
innodb_buffer_pool_instances = 4
innodb_buffer_pool_load_at_startup = 1
innodb_buffer_pool_dump_at_shutdown = 1
innodb_data_file_path = ibdata1:1G:autoextend
innodb_flush_log_at_trx_commit = 1
innodb_log_buffer_size = 32M
innodb_max_undo_log_size = 4G
innodb_undo_directory = /data/mysql_logs/undolog
```

```
# 根据您的服务器IOPS能力适当调整
# 一般配普通SSD盘的话，可以调整到 10000 - 20000
# 配置高端PCIe SSD卡的话，则可以调整的更高，比如 50000 - 80000
innodb_io_capacity = 10000
innodb_io_capacity_max = 10000
innodb_flush_sync = 0
innodb_flush_neighbors = 0
innodb_write_io_threads = 8
innodb_read_io_threads = 8
innodb_purge_threads = 4
innodb_page_cleaners = 4
innodb_open_files = 60000
innodb_max_dirty_pages_pct = 50
innodb_flush_method = O_DIRECT
innodb_lru_scan_depth = 4000
innodb_checksum_algorithm = crc32
innodb_lock_wait_timeout = 10
innodb_rollback_on_timeout = 1
innodb_print_all_deadlocks = 1
innodb_file_per_table = 1
innodb_online_alter_log_max_size = 4G
innodb_stats_on_metadata = 0
innodb_undo_log_truncate = 1

# some var for MySQL 8
log_error_verbosity = 3
innodb_print_ddl_logs = 1
binlog_expire_logs_seconds = 2592000
#innodb_dedicated_server = 0

innodb_status_file = 1
#注意：开启 innodb_status_output & innodb_status_output_locks 后，可能会导致log-error文件增长较快
innodb_status_output = 0
innodb_status_output_locks = 0

#performance_schema
performance_schema = 1
performance_schema_instrument = '%memory%=on'
performance_schema_instrument = '%lock%=on'

#innodb monitor
innodb_monitor_enable="module_innodb"
innodb_monitor_enable="module_server"
innodb_monitor_enable="module_dml"
innodb_monitor_enable="module_ddl"
innodb_monitor_enable="module_trx"
innodb_monitor_enable="module_os"
innodb_monitor_enable="module_purge"
innodb_monitor_enable="module_log"
innodb_monitor_enable="module_lock"
```

```
innodb_monitor_enable="module_buffer"
innodb_monitor_enable="module_index"
innodb_monitor_enable="module_ibuf_system"
innodb_monitor_enable="module_buffer_page"
innodb_monitor_enable="module_adaptive_hash"

[mysqldump]
quick
max_allowed_packet = 32M
```

2. 权限配置

```
# 创建账户
$ sudo groupadd mysql
$ sudo useradd -g mysql mysql -s /bin/false
# 配置权限
$ sudo mkdir -pv /data/mysql/ /var/run/mysqld/ /data/mysql_logs/binlog/
$ sudo touch /data/mysql_logs/error.log
$ sudo chown -R mysql:mysql /data/mysql/ /var/run/mysqld/  /data/mysql_logs/ /etc/mysql/
```

3. 初始化数据库

```
$ sudo /usr/local/mysql/bin/mysqld --initialize \
--user=mysql \
--basedir=/usr/local/mysql \
--datadir=/data/mysql
```

4. 修改MYSQL的文件数限制

```
$ sudo mkdir -pv /etc/systemd/system/mysql.service.d/
$ sudo vim /etc/systemd/system/mysql.service.d/override.conf
[Service]
LimitNOFILE=200000
```

5. 加入系统环境变量和软连接

```
$ sudo vim /etc/profile
# SET FOR MySQL
export PATH=$PATH:/usr/local/mysql/bin

$ source /etc/profile

$ sudo ln -s /usr/local/mysql/include/mysql /usr/include/mysql
```

6. 创建系统服务

```
$ sudo vim /usr/lib/systemd/system/mysql.service
# MySQL systemd service file

[Unit]
Description=MySQL Community Server
After=network.target

[Install]
WantedBy=multi-user.target

[Service]
Type=notify
User=mysql
Group=mysql
PIDFile=/var/run/mysqld/mysql.pid
PermissionsStartOnly=true
ExecStart=/usr/local/mysql/bin/mysqld
TimeoutSec=infinity
Restart=on-failure
RuntimeDirectory=mysqld
RuntimeDirectoryMode=755
LimitNOFILE=200000

# Set enviroment variable MYSQLD_PARENT_PID. This is required for restart.
Environment=MYSQLD_PARENT_PID=1

# 服务配置
$ sudo systemctl daemon-reload
$ sudo systemctl start mysql
$ sudo systemctl enable mysql
```

7. 登录并修改root密码

```
# 查看默认root的默认密码
$ cat /data/mysql_logs/error.log | grep password | grep generated | grep temporary

$ mysql -u root -p #使用默认密码登录

# 第一次登录后系统会强制让修改默认密码：

mysql> ALTER USER 'root'@'localhost' IDENTIFIED BY 'ABCDEFG@123@abcdefg' PASSWORD EXPIRE NEVER;

mysql> flush privileges;
```