一、准备工作（安装 mysql 安装依赖的环境）

1、Mysql5.7 版本更新后有很多变化，安装必须要 BOOST 库（版本需为 1.59.0）

1）boost 库下载地址：https://sourceforge.net/projects/boost/files/boost/1.59.0/

```shell
[root@VM                                    download]#                                wget
https://jaist.dl.sourceforge.net/project/boost/boost/1.59.0/boost_1_59_0.tar.gz
```

2）检查文件 MD5 值是否匹配：若不匹配需重新下载

```shell
[root@VM download]# md5sum boost_1_59_0.tar.gz
51528a0e3b33d9e10aaa311d9eb451e3    boost_1_59_0.tar.gz
```

3）解压后放在指定位置备用

```shell
[root@VM download]# tar -vxzf boost_1_59_0.tar.gz
[root@VM download]# mv boost_1_59_0 /usr/local/boost_1_59_0
```

2、安装依赖包

```shell
yum -y install gcc gcc-c++ ncurses ncurses-devel cmake
```

二、下载 mysql + 编译安装

1、官网下载地址：https://dev.mysql.com/downloads/mysql/

1）下载文件

```shell
[root@VM   download]#   wget   https://dev.mysql.com/get/Downloads/MySQL-5.7/mysql-
5.7.21.tar.gz
```

2）检查文件 MD5 值是否匹配：若不匹配需重新下载

```shell
[root@VM download]# md5sum mysql-5.7.21.tar.gz
e26523b174bdc3fd0fde6f36791ce17e    mysql-5.7.21.tar.gz
```

3）解压文件

```shell
[root@VM download]# tar -vxzf mysql-5.7.21.tar.gz
```

2、编译和安装

1）进入到解压文件目录，依次运行以下命令：

```shell
[root@VM mysql-5.7.21]# cmake . \
  -DCMAKE_INSTALL_PREFIX=/usr/local/mysql \
  -DMYSQL_DATADIR=/data/mysql \
  -DWITH_BOOST=/usr/local/boost_1_59_0 \
  -DSYSCONFDIR=/etc \
  -DDEFAULT_CHARSET=utf8mb4 \
  -DDEFAULT_COLLATION=utf8mb4_general_ci \
  -DENABLED_LOCAL_INFILE=1 \
  -DEXTRA_CHARSETS=all

[root@VM mysql-5.7.21]# make            #时间会很长可能大于 1 小时
[root@VM mysql-5.7.21]# make install
```

-DCMAKE_INSTALL_PREFIX：mysql 安装目录

-DMYSQL_DATADIR：数据存放目录

-DWITH_BOOST：boost 源码路径

-DSYSCONFDIR：my.cnf 配置文件目录

-DEFAULT_CHARSET：数据库默认字符编码

-DDEFAULT_COLLATION: 默认排序规则

-DENABLED_LOCAL_INFILE: 允许从本文件导入数据

-DEXTRA_CHARSETS: 安装所有字符集

注： 更 多 预 编 译 配 置 参 数 请 参 考 mysql 官 方 文 档 说 明：
http://dev.mysql.com/doc/refman/5.7/en/source-configuration-options.html#cmake-
general-options

2) 错误解决 -- make 时报错:

![image-20210527145232590](C:\Users\HX\AppData\Roaming\Typora\typora-user-
images\image-20210527145232590.png)

主要原因大体上是因为内存不足 临时使用交换分区来解决

```shell
sudo dd if=/dev/zero of=/swapfile bs=64M count=16
sudo mkswap /swapfile
sudo swapon /swapfile
```

*编译出错了，需根据下面操作，重新编译安装。(网上搜到的方法，但是删除后也没有解决
问题，最后将整个文件都删除了，重新解压了一份)*

```shell
[root@VM mysql-5.7.21] make clean
[root@VM mysql-5.7.21] rm -f CMakeCache.txt
[root@VM mysql-5.7.21] make && make install
```

*在编译完成后，需运行以下代码: *

```shell
sudo swapoff /swapfile
sudo rm /swapfile
```


三、配置 MySQL

1、设置权限

1）使用下面的命令查看是否有 mysql 用户及用户组

```shell
cat /etc/passwd  查看用户列表
cat /etc/group    查看用户组列表
```

2）如果没有就创建 mysql 数据库管理用户和组

```shell
[root@VM download]# groupadd mysql
[root@VM download]# useradd -r -g mysql -s /bin/false mysql
```

3）修改/usr/local/mysql 权限

```shell
chown -R mysql:mysql /usr/local/mysql
```

2、修改/etc/my.cnf 文件和/etc/my.cnf.d/mysql-clients.cnf 文件

1）修改/etc/my.cnf 文件

```shell
### /etc/my.cnf
[mysqld]
socket=/var/lib/mysql/mysql.sock

#指定 server 端字符集
character-set-server = utf8
collation-server = utf8_general_ci

# 解决问题：TIMESTAMP with implicit DEFAULT value is deprecated
explicit_defaults_for_timestamp=true

# mysql 程序安装目录
basedir=/usr/local/mysql

# mysql 数据文件目录
datadir=/data/mysql
```

```
pid-file = /data/mysql/mysql.pid
log_error = /data/mysql/mysql-error.log

# Disabling symbolic-links is recommended to prevent assorted security risks
symbolic-links=0
# Settings user and group are ignored when systemd is used.
# If you need to run mysqld under a different user or group,
# customize your systemd unit file for mariadb according to the
# instructions in http://fedoraproject.org/wiki/Systemd

[mysqld_safe]
log-error=/var/log/mariadb/mariadb.log
pid-file=/var/run/mariadb/mariadb.pid

#
# include all files from the config directory
#
!includedir /etc/my.cnf.d

#更改字符集为 utf-8
[client]
default-character-set=utf8

[mysql]
default-character-set=utf8
```
```

2）修改/etc/my.cnf.d/mysql-clients.cnf 文件

```shell
###   /etc/my.cnf.d/mysql-clients.cnf
#
# These groups are read by MariaDB command-line tools
# Use it for options that affect only one utility
#

# 在配置文件中添加"[client]"选项和"[mysql]"选项
# 并使用这两个选项下的"socket"参数值，与"[mysqld]"选项下的"socket"参数值，指向的
socket 文件路径完全一致
# 解决问题：  connect to local MySQL server through socket /var/lib/mysql/mysql.sock

[mysql]
default-character-set=utf8
```

```
socket=/var/lib/mysql/mysql.sock

[client]
default-character-set=utf8
socket=/var/lib/mysql/mysql.sock

[mysql_upgrade]
[mysqladmin]
[mysqlbinlog]
[mysqlcheck]
[mysqldump]
[mysqlimport]
[mysqlshow]
[mysqlslap]
```

四、初始化数据库并将 mysql 加入系统服务

1、初始化数据库

```shell
[root@VM mysql-5.7.21]# cd /usr/local/mysql/bin/
#两种方式任选一种
#1）不生成 root 密码
[root@VM bin]# ./mysqld --initialize-insecure --user=mysql --basedir=/usr/local/mysql --datadir=/data/mysql

#2）生成 root 随机密码，在/data/mysql/mysql-error.log 文件中
[root@VM bin]#     ./mysqld --initialize --user=mysql --basedir=/usr/local/mysql --datadir=/data/mysql
```

2、将 mysql 加入系统服务

```shell
[root@VM bin]#    cd /usr/local/mysql/support-files/
[root@VM support-files]#    cp mysql.server /etc/init.d/mysql
[root@VM support-files]#    chkconfig --add mysql          # mysql 加入系统服务
[root@VM support-files]#    chkconfig mysql on            #  开机启动
[root@VM support-files]#    service mysql start
```

运行 service mysql start 报错

1）mysqld_safe error: log-error set to '/var/log/mariadb/mariadb.log', however file don't exists. Create writable for user 'mysql'. ERROR! The server quit without updating PID file (/data/mysql/mysql.pid).

解决方法：

```shell
[root@VM support-files]# mkdir /var/log/mariadb
[root@VM support-files]# touch /var/log/mariadb/mariadb.log
[root@VM support-files]# chown -R mysql:mysql /var/log/mariadb/
```

2）mysqld_safe Directory '/var/lib/mysql' for UNIX socket file don't exists.   ERROR! The server quit without updating PID file (/data/mysql/mysql.pid).

解决方法：

```shell
[root@VM support-files]# mkdir /var/lib/mysql
[root@VM support-files]# chown -R mysql:mysql /var/lib/mysql/
```

解决了这两个问题就启动成功了：

```shell
[root@VM support-files]# service mysql start
Starting MySQL. SUCCESS!
```

mysql 服务的启动/重启/停止

```shell
service mysql start       #启动 mysql 服务
service mysql restart    #重启 mysql 服务
service mysql stop        #停止 mysql 服务
```

五、登录 mysql

1、设置环境变量 PATH，否则不能直接调用 mysql

```shell
```

```
vim /etc/profile
# 在 profile 文件末尾增加两行
PATH=/usr/local/mysql/bin:/usr/local/mysql/lib:$PATH
export PATH
# 使 PATH 搜索路径立即生效：
source /etc/profile
```

2、登录

1）查看初始密码

```shell
[root@VM mysql]# cat /data/mysql/mysql-error.log | grep password
2018-04-10T15:54:18.596286Z  1  [Note]  A  temporary  password  is  generated  for
root@localhost: +uAqjuq/g7hv
```

2）登录成功

```shell
[root@VM_38_201_centos mysql]# mysql -uroot -p+uAqjuq/g7hv
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.   Commands end with ; or \g.
Your MySQL connection id is 6
Server version: 5.7.21
Copyright (c) 2000, 2018, Oracle and/or its affiliates. All rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql>
```

3）修改登录密码

```shell
mysql> set password=password('123654');
Query OK, 0 rows affected, 1 warning (0.00 sec)
```