

高可用架构:

mha+semi\_sync+gtid+vip(mha 自带, 非 keepalived) master-slave1-slave2-manager

master\_ip\_failover

master\_ip\_online\_change

-version

percona-mysql5.7.39 manager-0.58 node-0.58

node 依赖:

curl -o /etc/yum.repos.d/CentOS-Base.repo  
http://mirrors.aliyun.com/repo/Centos-7.repo (换源非必要)

yum -y install perl-DBD-MySQL ncftp perl-DBI (node 依赖)

rpm -ivh mha4mysql-node-0.58-0.el7.centos.noarch.rpm

yum install -y perl-DBD-MySQL perl-Config-Tiny perl-Log-Dispatch perl-Parallel-ForkManager (manager 依赖)

--rpm 依赖

```sh

rpm -ivh perl-Params-Util-1.07-6.el7.x86\_64.rpm perl-Sub-Install-0.926-6.el7.noarch.rpm

rpm -ivh perl-Data-OptList-0.107-9.el7.noarch.rpm

rpm -ivh mha4mysql-node-0.58-0.el7.centos.noarch.rpm

rpm -ivh perl-Params-Util-1.07-6.el7.x86\_64.rpm perl-Sub-Install-0.926-6.el7.noarch.rpm

rpm -ivh perl-Data-OptList-0.107-9.el7.noarch.rpm

rpm -ivh perl-Parallel-ForkManager-1.18-2.el7.noarch.rpm

rpm -ivh perl-Module-Runtime-0.013-4.el7.noarch.rpm

rpm -ivh perl-Try-Tiny-0.12-2.el7.noarch.rpm

```

rpm -ivh perl-Module-Implementation-0.06-6.el7.noarch.rpm
rpm -ivh perl-List-MoreUtils-0.33-9.el7.x86_64.rpm
rpm -ivh perl-Package-DeprecationManager-0.13-7.el7.noarch.rpm
rpm -ivh perl-Package-Stash-XS-0.26-3.el7.x86_64.rpm
rpm -ivh perl-Package-Stash-0.34-2.el7.noarch.rpm
rpm -ivh perl-Class-Load-0.20-3.el7.noarch.rpm
rpm -ivh perl-Mail-Date-Format-1.002-15.el7.noarch.rpm perl-MIME-Types-1.38-2.el7.noarch.rpm
rpm -ivh perl-Mozilla-CA-20130114-5.el7.noarch.rpm perl-Net-LibIDN-0.12-15.el7.x86_64.rpm perl-Net-SSLeay-1.55-6.el7.x86_64.rpm
rpm -ivh perl-IO-Socket-IP-0.21-5.el7.noarch.rpm perl-IO-Socket-SSL-1.94-7.el7.noarch.rpm
rpm -ivh perl-Mail-Sender-0.8.23-1.el7.noarch.rpm perl-Mail-Sendmail-0.79-21.el7.noarch.rpm
rpm -ivh perl-Mail-Sendmail-0.79-21.el7.noarch.rpm
rpm -ivh perl-Params-Validate-1.08-4.el7.x86_64.rpm perl-Sys-Syslog-0.33-3.el7.x86_64.rpm
rpm -ivh perl-Data-OptList-0.107-9.el7.noarch.rpm
rpm -ivh perl-TimeDate-2.30-2.el7.noarch.rpm
rpm -ivh perl-Net-SMTP-SSL-1.01-13.el7.noarch.rpm
rpm -ivh perl-MailTools-2.12-2.el7.noarch.rpm
rpm -ivh perl-Log-Dispatch-2.41-1.el7.1.noarch.rpm
rpm -ivh mha4mysql-manager-0.58-0.el7.centos.noarch.rpm
```

```

--搭建主从基于 gtid 命令行

```

```sh
cd / && mkdir -p data/{mysql_basedir,mysql} && mkdir -p /data/mysql/{data,binlog,readylog,log,mysql_sock,tmp} && touch /data/mysql/log/error.log && chown -R mysql:mysql /data/
tar xf /root/mysql-5.7.39-42-Linux.x86_64.glibc2.17.tar.gz -C /data/mysql_basedir && mv /data/mysql_basedir/Percona*/ */data/mysql_basedir && cd /data/mysql_basedir && ./bin/mysqld --initialize-insecure --user=mysql
cp /data/mysql_basedir/support-files/mysql.server /etc/init.d/mysql && systemctl daemon-reload && systemctl restart mysql
```

```

```

```mysql
create user 'trsen'@'192.168.88.%' identified by 'trsen';
grant all privileges on *.* to 'trsen'@'192.168.88.%';

create user 'repl'@'192.168.88.%' identified by 'repl';

```

```
grant replication slave on *.* to 'repl'@'192.168.88.%';
```

```
change                                     master                                     to
master_host='192.168.88.16',master_user='repl',master_password='repl',
master_auto_position=1;
```
```

--mha 相关配置

```
masterha_check_ssh --conf=/data/masterha_mha1.cnf (连接测试)
```

```
![image-20230517142202828](./imgs/image-20230517142202828.png)
```

```
masterha_check_repl --conf=/data/masterha_mha1.cnf (集群复制状态)
```

```
![image-20230517140728627](./imgs/image-20230517140728627.png)
```

```
nohup      masterha_manager      --conf=/data/masterha_mha1.cnf      --
remove_dead_master_conf  --ignore_last_failover  <    /dev/null    >
/data/masterha/log/mha1.log & (运行 mha)
```

```
![image-20230517142232627](./imgs/image-20230517142232627.png)
```

```
masterha_check_status --conf=/data/masterha_mha1.cnf (mha status)
```

```
![image-20230517142244505](./imgs/image-20230517142244505.png)
```

--其他相关

```
/sbin/ip addr add 192.168.88.20/24 dev ens33 label ens33:1(添加VIP、要
注意: ens33:1 是要在 failover 是 做 down 的。)
```

```
/sbin/ip addr del 192.168.88.20/24 dev ens33 label ens33:1(删除)(需要时
再用)
```

--mycnf (本次环境)

```
```visual basic
Master1
```

```

[mysqld]
#basic settings#
basedir    = /data/mysql_basedir
datadir    = /data/mysql/data
socket     = /data/mysql/mysql_sock/mysql.sock
pid-file   = /data/mysql/data/mysql.pid
log-bin    = /data/mysql/binlog/mysql-bin
autocommit=0
transaction_isolation = READ-COMMITTED
explicit_defaults_for_timestamp=ON
log_timestamps=SYSTEM
log_error_verbosity=2
character_set_server=utf8
collation_server=utf8_unicode_ci
symbolic-links=0
server_id=16
#replication settings#
plugin=
load='rpl_semi_sync_master=semisync_master.so;rpl_semi_sync_slave=semi
sync_slave.so'
rpl-semi-sync-master-enabled=1
rpl-semi-sync-slave-enabled=1
log-bin-index=localhost.localdomain-bin.index
log-bin=localhost.localdomain-bin
binlog-format=row
relay_log_purge=off
relay-log-info-repository=table
master-info-repository=table
enforce-gtid-consistency=ON
gtid_mode=ON
[mysqld_safe]
log-error = /data/mysql/log/error.log

```

```

[client]
socket     = /data/mysql/mysql_sock/mysql.sock

```

```

Slave1
[mysqld]
basedir    = /data/mysql_basedir
datadir    = /data/mysql/data
socket     = /data/mysql/mysql_sock/mysql.sock
pid-file   = /data/mysql/data/mysql.pid
log-bin    = /data/mysql/binlog/mysql-bin
relay_log  = /data/mysql/relaylog/mysql-relay-bin

```

```

relay_log_index = /data/mysql/reaylog/mysql-relay-bin.index
read_only=on
#basic settings#
autocommit=0
transaction_isolation = READ-COMMITTED
explicit_defaults_for_timestamp=ON
log_timestamps=SYSTEM
log_error_verbosity=2
character_set_server=utf8
collation_server=utf8_unicode_ci
symbolic-links=0
server_id=17
#replication settings#
plugin=
load='rpl_semi_sync_master=semisync_master.so;rpl_semi_sync_slave=semi
sync_slave.so'
rpl-semi-sync-master-enabled=1
rpl-semi-sync-slave-enabled=1
log-bin-index=localhost.localdomain-bin.index
log-bin=localhost.localdomain-bin
binlog-format=row
relay_log_purge=off
relay-log-info-repository=table
master-info-repository=table
enforce-gtid-consistency=ON
gtid_mode=ON
[mysqld_safe]
log-error = /data/mysql/log/error.log

```

```

[client]
socket      = /data/mysql/mysql_sock/mysql.sock

```

```

Slave2
[mysqld]
basedir    = /data/mysql_basedir
datadir    = /data/mysql/data
socket     = /data/mysql/mysql_sock/mysql.sock
pid-file   = /data/mysql/data/mysql.pid
log-bin    = /data/mysql/binlog/mysql-bin
relay_log  = /data/mysql/reaylog/mysql-relay-bin
relay_log_index = /data/mysql/reaylog/mysql-relay-bin.index
read_only=on
#basic settings#
autocommit=0

```

```

transaction_isolation = READ-COMMITTED
explicit_defaults_for_timestamp=ON
log_timestamps=SYSTEM
log_error_verbosity=2
character_set_server=utf8
collation_server=utf8_unicode_ci
symbolic-links=0
server_id=18
#replication settings#
plugin=
load='rpl_semi_sync_master=semisync_master.so;rpl_semi_sync_slave=semi
sync_slave.so'
rpl-semi-sync-master-enabled=1
rpl-semi-sync-slave-enabled=1
log-bin-index=localhost.localdomain-bin.index
log-bin=localhost.localdomain-bin
binlog-format=row
relay_log_purge=off
relay-log-info-repository=table
master-info-repository=table
enforce-gtid-consistency=ON
gtid_mode=ON
[mysqld_safe]
log-error = /data/mysql/log/error.log

[client]
socket      = /data/mysql/mysql_sock/mysql.sock
...

```

--masterha\_mha1.cnf

```

... sh
[server default]
\#log_level=debug
\#MySQL 的用户和密码
user=trsen
password=trsen

\#系统 ssh 用户
ssh_user=root
ssh_port=22

\#复制用户
repl_user=repl

```

```
repl_password=repl
```

```
\#监控
```

```
ping_interval=3
```

```
\#shutdown_script=""
```

```
\#切换调用的脚本
```

```
master_ip_failover_script= /data/masterha/master_ip_failover
```

```
master_ip_online_change_script= /data/masterha/master_ip_online_change
```

```
\#####cluster1#####  
#####
```

```
\#mha manager 工作目录
```

```
manager_workdir = /data/masterha/mha1
```

```
manager_log = /data/masterha/log/mha1.log
```

```
remote_workdir = /data/masterha/tmp
```

```
port = 3306
```

```
[server1]
```

```
hostname=192.168.88.16
```

```
master_binlog_dir = /data/mysql/data/
```

```
candidate_master = 1
```

```
check_repl_delay = 0 #用防止 master 故障时，切换时 slave 有延迟，卡在那里  
切不过来。
```

```
[server2]
```

```
hostname=192.168.88.17
```

```
master_binlog_dir= /data/mysql/data/
```

```
candidate_master=1
```

```
check_repl_delay=0
```

```
[server3]
```

```
hostname=192.168.88.18
```

```
master_binlog_dir= /data/mysql/data/
```

```
candidate_master=1
```

```
check_repl_delay=0
```

```
````
```

--异常插曲

```
````sh
```

Last\_error 1396 根因 从库已有主库的 gtid 值

```
select * from performance_schema.replication_applier_status_by_worker  
where LAST_ERROR_NUMBER=1396;
```

```
mysql> select * from
```

```
performance_schema.replication_applier_status_by_worker      where
LAST_ERROR_NUMBER=1396;
```

| CHANNEL_NAME | WORKER_ID | THREAD_ID | SERVICE_STATE | LAST_SEEN_TRANSACTION                  | LAST_ERROR_NUMBER | LAST_ERROR_MESSAGE                                                                            | LAST_ERROR_TIMESTAMP                                                                                                              |
|--------------|-----------|-----------|---------------|----------------------------------------|-------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
|              | 0         | NULL      | OFF           | 3a3076e9-7c3c-11ed-94d6-000c29d8adc1:1 | 1396              | Error 'Operation CREATE USER failed for 'repl'@'192.168.88.%' on query. Default database: ''. | Query: 'CREATE USER 'repl'@'192.168.88.%' IDENTIFIED WITH 'mysql_native_password' AS '*A424E797037BF97C19A2E88CF7891C5C2038C039'' |
|              |           |           |               |                                        |                   | 2022-12-15 16:29:21                                                                           |                                                                                                                                   |

1 row in set (0.00 sec)

方法，跳过该 gtid 事务。执行一个空事务，（要先 stop slave）

```
mysql> set @@session.gtid_next='3a3076e9-7c3c-11ed-94d6-000c29d8adc1:1';
```

Query OK, 0 rows affected (0.00 sec)

```
mysql> begin;commit;set @@session.gtid_next=automatic; start slave;
```

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Start slave, 即可

...