TTS 11.0 COOKBOOK

(NSD RDBMS2 DAY04)

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达内IT培训集团

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达内 IT 培训集团

NSD RDBM2 DAY04

1. 案例 1：准备 MHA 集群环境

- **问题**
  - 配置 SSH 免密登录
  - 安装依赖包
  - 配置 MySQL 一主多从结构

- **方案**

准备 5 台虚拟机，角色规划如图-1 所示。

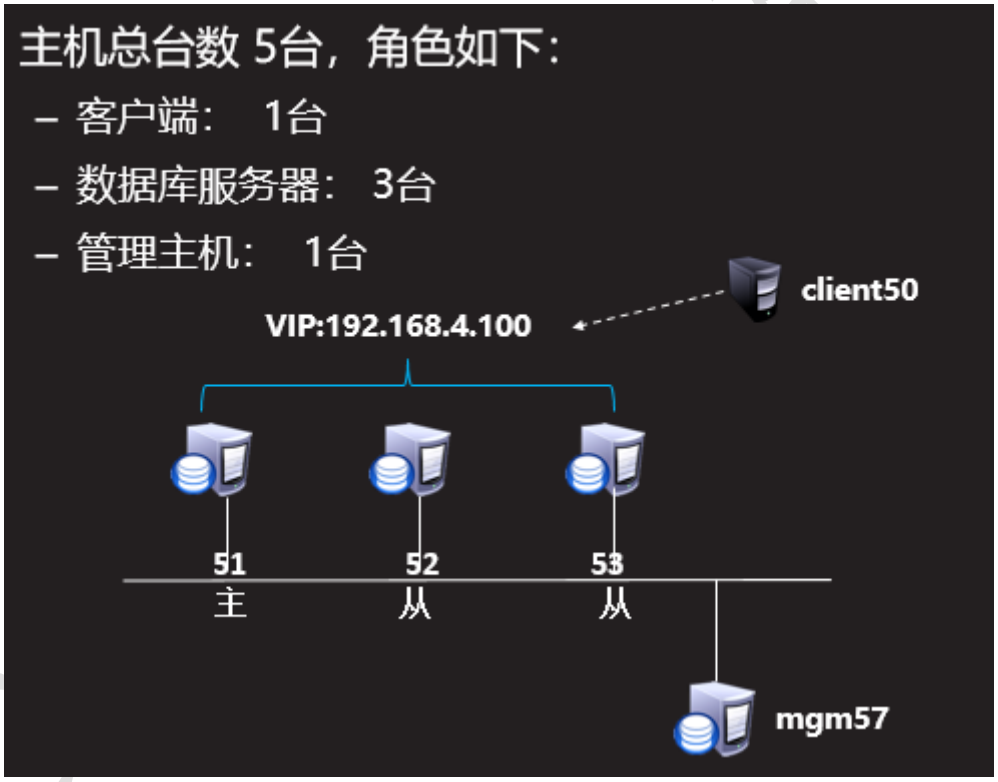

图 - 1

IP 规划，如图-2 所示：

IP地址	主从同步角色	集群角色	主机名
192.168.4.50	客户端	无	client50
192.168.4.51	主库	当前主库	host51
192.168.4.52	从库	备用主库	host52
192.168.4.53	从库	备用主库	host53
192.168.4.57	无	管理主机	mgm57
192.168.4.100	无	VIP地址	无

图-2

- **步骤**

实现此案例需要按照如下步骤进行。

步骤一： 配置 ssh 免密登录

1）配置数据库服务器 192.168.4.51

```
[root@host51 ~]# ssh-keygen //创建秘钥对
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa): //回车
Enter passphrase (empty for no passphrase):  //回车
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa.
Your public key has been saved in /root/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:qb7EZByHad3Jadr+zkiEbo7ZKGmCNlctgp+Wfp3Yad0 root@pxcnode71
The key's randomart image is:
+---[RSA 2048]----+
|                 |
|      + o o      |
|     = o *       |
|    o o *        |
|  .   = S o      |
| . . * + o       |
| .. =.O * +      |
|.o.*+= & o E     |
|. =+..B.o ..+    |
+----[SHA256]-----+
[root@host51 ~]#
[root@host51 ~]# ssh-copy-id  root@192.168.4.52  //传递公钥给 host52 主机
/usr/bin/ssh-copy-id:  INFO:  Source  of  key(s)  to  be  installed:
"/root/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out
any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted
now it is to install the new keys
root@192.168.4.71's password:  //输入 host52 主机系统管理员 root 用户密码

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'root@192.168.4.52'"
and check to make sure that only the key(s) you wanted were added.
[root@host51 ~]#
```

```
[root@host51 ~]# ssh-copy-id  root@192.168.4.53  //传递公钥给 host53 主机
/usr/bin/ssh-copy-id:  INFO:  Source  of  key(s)  to  be  installed:
"/root/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out
any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted
now it is to install the new keys
root@192.168.4.71's password:  //输入 host53 主机系统管理员 root 用户密码

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'root@192.168.4.53'"
and check to make sure that only the key(s) you wanted were added.
[root@host51 ~]#

[root@host51 ~]# ssh root@192.168.4.52 //可以无密码连接 52 主机
Last login: Fri Jun 21 13:21:39 2019 from 192.168.4.254
                  .-"""-.
                 / .===. \
                 \/ 6 6 \/
                 ( \___/ )
      _________ooo__\_____/_____________
     /                                  \
     |    I  am  Virtual Host ! ! !     |
     \_____________________ooo_________/
                  |  |  |
                  |_ | _|
                  |  |  |
                  |__|__|
                  /-'Y'-\
                 (__/ \__)

[root@host52 ~]#
[root@host52 ~]# exit //断开连接
登出
Connection to 192.168.4.52 closed.
[root@host51 ~]#
[root@host51 ~]# ssh root@192.168.4.53 //可以无密码连接 52 主机
Last login: Fri Jun 21 09:01:15 2019 from 192.168.4.254
                  .-"""-.
                 / .===. \
                 \/ 6 6 \/
                 ( \___/ )
      _________ooo__\_____/_____________
     /                                  \
     |    I  am  Virtual Host ! ! !     |
     \_____________________ooo_________/
                  |  |  |
                  |_ | _|
                  |  |  |
                  |__|__|
                  /-'Y'-\
                 (__/ \__)

[root@host53 ~]# exit//断开连接
登出
Connection to 192.168.4.53 closed.
[root@host51 ~]#
```

2）配置数据库服务器 192.168.4.52

```
[root@host52 ~]# ssh-keygen //创建秘钥对
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa): //回车
Enter passphrase (empty for no passphrase):  //回车
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa.
Your public key has been saved in /root/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:qb7EZByHad3Jadr+zkiEbo7ZKGmCNlctgp+Wfp3Yad0 root@pxcnode71
The key's randomart image is:
+---[RSA 2048]----+
|                 |
|      + o o      |
|     = o *       |
|    o o *        |
|  .   = S o      |
| . . * + o       |
| .. =.O * +      |
|.o.*+= & o E     |
|. =+..B.o ..+    |
+----[SHA256]-----+
[root@host52 ~]#
[root@host52 ~]# ssh-copy-id  root@192.168.4.51  //传递公钥给 host51 主机
/usr/bin/ssh-copy-id:    INFO:    Source    of    key(s)    to    be    installed:
"/root/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out
any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted
now it is to install the new keys
root@192.168.4.51's password:  //输入 host51 主机系统管理员 root 用户密码

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'root@192.168.4.51'"
and check to make sure that only the key(s) you wanted were added.
[root@host52 ~]#
[root@host52 ~]# ssh-copy-id  root@192.168.4.53  //传递公钥给 host53 主机
/usr/bin/ssh-copy-id:    INFO:    Source    of    key(s)    to    be    installed:
"/root/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out
any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted
now it is to install the new keys
root@192.168.4.53's password:  //输入 host53 主机系统管理员 root 用户密码

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'root@192.168.4.53'"
and check to make sure that only the key(s) you wanted were added.
[root@host52 ~]#

[root@host52 ~]# ssh root@192.168.4.51 //可以无密码连接 51 主机
Last login: Fri Jun 21 13:21:39 2019 from 192.168.4.254
                  .-"""-.
                 / .===. \
                 \/ 6 6 \/
                 ( \___/ )
      _________ooo__\_____/_____________
     /                                  \
     |    I  am  Virtual Host ! ! !     |
```

```
      \_________________________ooo_________/
                    |  |  |
                    |_ | _|
                    |  |  |
                    |__|__|
                   /-'Y'-\
                  (__/ \__)

[root@host51 ~]#
[root@host51 ~]# exit //断开连接
登出
Connection to 192.168.4.52 closed.
[root@host52 ~]#
[root@host52 ~]# ssh root@192.168.4.53 //可以无密码连接 53 主机
Last login: Fri Jun 21 09:01:15 2019 from 192.168.4.254
                   .-"""-.
                  / .===. \
                  \/ 6 6 \/
                  ( \___/ )
      _________ooo__\_____/_____________
     /                                  \
     |     I  am  Virtual Host ! ! !     |
     \_________________________ooo_______/
                    |  |  |
                    |_ | _|
                    |  |  |
                    |__|__|
                   /-'Y'-\
                  (__/ \__)

[root@host53 ~]# exit//断开连接
登出
Connection to 192.168.4.53 closed.
[root@host52 ~]#
```

3）配置数据库服务器 192.168.4.53

```
[root@host53 ~]# ssh-keygen //创建秘钥对
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa): //回车
Enter passphrase (empty for no passphrase):  //回车
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa.
Your public key has been saved in /root/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:qb7EZByHad3Jadr+zkiEbo7ZKGmCNlctgp+Wfp3Yad0 root@pxcnode71
The key's randomart image is:
+---[RSA 2048]----+
|                 |
|      + o o      |
|     = o *       |
|    o o *        |
|  .   = S o      |
| . . * + o       |
| .. =.O * +      |
|.o.*+= & o E     |
|. =+..B.o ..+    |
+----[SHA256]-----+
[root@host53 ~]#
[root@host53 ~]# ssh-copy-id  root@192.168.4.51  //传递公钥给 host51 主机
```

```
    /usr/bin/ssh-copy-id:    INFO:    Source    of    key(s)    to    be    installed:
"/root/.ssh/id_rsa.pub"
    /usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out
any that are already installed
    /usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted
now it is to install the new keys
    root@192.168.4.51's password:  //输入 host51 主机系统管理员 root 用户密码

    Number of key(s) added: 1

    Now try logging into the machine, with:   "ssh 'root@192.168.4.51'"
    and check to make sure that only the key(s) you wanted were added.
    [root@host53 ~]#
    [root@host53 ~]# ssh-copy-id  root@192.168.4.52  //传递公钥给 host52 主机
    /usr/bin/ssh-copy-id:    INFO:    Source    of    key(s)    to    be    installed:
"/root/.ssh/id_rsa.pub"
    /usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out
any that are already installed
    /usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted
now it is to install the new keys
    root@192.168.4.52's password:  //输入 host52 主机系统管理员 root 用户密码

    Number of key(s) added: 1

    Now try logging into the machine, with:   "ssh 'root@192.168.4.52'"
    and check to make sure that only the key(s) you wanted were added.
    [root@host53 ~]#

    [root@host53 ~]# ssh root@192.168.4.51 //可以无密码连接 51 主机
    Last login: Fri Jun 21 13:21:39 2019 from 192.168.4.254
                      .-"""-.
                     / .===. \
                     \/ 6 6 \/
                     ( \___/ )
          _________ooo__\_____/_____________
         /                                  \
         |     I  am  Virtual Host ! ! !     |
         \_____________________ooo_________/
                       |  |  |
                       |_ | _|
                       |  |  |
                       |__|__|
                        /-'Y'-\
                       (__/ \__)

    [root@host51 ~]#
    [root@host51 ~]# exit //断开连接
    登出
    Connection to 192.168.4.51 closed.
    [root@host53 ~]#
    [root@host53 ~]# ssh root@192.168.4.52 //可以无密码连接 52 主机
    Last login: Fri Jun 21 09:01:15 2019 from 192.168.4.254
                      .-"""-.
                     / .===. \
                     \/ 6 6 \/
                     ( \___/ )
          _________ooo__\_____/_____________
         /                                  \
         |     I  am  Virtual Host ! ! !     |
         \_____________________ooo_________/
                       |  |  |
                       |_ | _|
```

```
                    |  |  |
                    |__|__|
                    /-'Y'-\
                   (__/ \__)

[root@host52 ~]# exit//断开连接
登出
Connection to 192.168.4.52 closed.
[root@host53 ~]#
```

步骤二： 安装依赖包

1）配置数据库服务器 192.168.4.51

```
[root@host51 ~]# yum  -y  install   perl-*  //安装系统自带的 perl 软件包
[root@host51 ~]#  cd  mha-soft-student
[root@host51 ~]#  yum  -y  install  perl-*  //安装共享的 perl 软件包
```

2）配置数据库服务器 192.168.4.52

```
[root@host52 ~]# yum  -y  install   perl-*  //安装系统自带的 perl 软件包
[root@host52 ~]#  cd  mha-soft-student
[root@host52 ~]#  yum  -y  install  perl-*  //安装共享的 perl 软件包[root@localhost
```

3）配置数据库服务器 192.168.4.53

```
[root@host53 ~]# yum  -y  install   perl-*  //安装系统自带的 perl 软件包
[root@host53 ~]#  cd  mha-soft-student
[root@host53 ~]#  yum  -y  install  perl-*  //安装共享的 perl 软件包
```

4）配置管理服务器 192.168.4.57

```
[root@mgm57 ~]# yum  -y  install   perl-*  //安装系统自带的 perl 软件包
[root@mgm57 ~]#  cd  mha-soft-student
[root@mgm57 ~]#  yum  -y  install  perl-*  //安装共享的 perl 软件包
```

步骤三： 配置 MySQL 一主多从结构

1）配置主服务器 192.168.4.51

```
[root@host51 ~]# vim /etc/my.cnf
[mysqld]
log-bin=master51 //日志名
server_id=51 //指定 server_id
:wq
[root@host51 ~]# systemctl  restart  mysqld

[root@host51 ~]# mysql  -uroot  -p123qqq…A
mysql> grant  replication slave  on  *.*  to repluser@"%"  identified by “123qqq…A";
//添加从服务器同步数据连接用户
mysql> show master status; //查看日志信息
mysql: [Warning] Using a password on the command line interface can be insecure.
+-----------------+----------+--------------+------------------+----------------
---+
| File            | Position | Binlog_Do_DB | Binlog_Ignore_DB | Executed_Gtid_Set
```

```
|
   +-----------------+----------+--------------+------------------+----------------
---+
   | master51.000001 |     441 |              |                  |                |
   +-----------------+----------+--------------+------------------+----------------
---+
   [root@host51 ~]#
```

2）配置从服务器 192.168.4.52

```
   [root@host52 ~]# vim /etc/my.cnf
   [mysqld]
   server_id=52 //指定 server_id
   :wq
   [root@host52 ~]# systemctl  restart  mysqld //重启数据库服务
   [root@host52 ~]# mysql -uroot -p123qqq…A //数据库管理员登录
   mysql> change master to  //指定主服务器信息
   master_host="192.168.4.51", //IP 地址
   master_user="repluser", //授权用户
   master_password="123qqq...A", //授权用户密码
   master_log_file="master51.000001", //binlog 日志
   master_log_pos=441; //偏移量

   mysql> start slave; //启动 slave 进程
   mysql> exit ; //断开连接

   [root@host52  ~]#  mysql  -uroot  -p123qqq…A  -e  “show  slave  status\G”  |  grep
192.168.4.51
   Master_Host: 192.168.4.51 //主服务器 Ip 地址

   [root@host52 ~]# mysql -uroot -p123qqq…A -e “show slave status\G” | grep -i  yes
   Slave_IO_Running: Yes  //I0 线程正常
   Slave_SQL_Running: Yes //SQL 线程正常
```

3）配置从服务器 192.168.4.53

```
   [root@host53 ~]# vim /etc/my.cnf
   [mysqld]
   server_id=53 //指定 server_id
   :wq
   [root@host53 ~]# systemctl  restart  mysqld //重启数据库服务
   [root@host53 ~]# mysql -uroot -p123qqq…A //数据库管理员登录
   mysql> change master to  //指定主服务器信息
   master_host="192.168.4.51", //IP 地址
   master_user="repluser", //授权用户
   master_password="123qqq...A", //授权用户密码
   master_log_file="master51.000001", //binlog 日志
   master_log_pos=441; //偏移量

   mysql> start slave; //启动 slave 进程
   mysql> exit ; //断开连接
```

```
[root@host53 ~]# mysql -uroot -p123qqq…A -e “show slave status\G” | grep 192.168.4.51
Master_Host: 192.168.4.51 //主服务器 Ip 地址

[root@host53 ~]# mysql -uroot -p123qqq…A -e “show slave status\G” | grep -i yes
Slave_IO_Running: Yes //I0 线程正常
Slave_SQL_Running: Yes //SQL 线程正常
```

2. 案例 2：部署 MHA 集群

- **问题**

  - 配置管理节点
  - 配置数据节点

- **步骤**

实现此案例需要按照如下步骤进行。

步骤一：配置管理节点

1）安装软件

```
[root@mgm57 ~]# cd mha-soft-student/
[root@mgm57 mha-soft-student]#
[root@mgm57 mha-soft-student]# rpm -ivh mha4mysql-node-0.56-0.el6.noarch.rpm//安装 mha-node 软件包
准备中... ################################# [100%]
正在升级/安装...
   1:mha4mysql-node-0.56-0.el6 ################################# [100%]
[root@mgm57 mha-soft-student]#

[root@mgm57 mha-soft-student]# rpm -qa | grep mha //查看是否安装成功
mha4mysql-node-0.56-0.el6.noarch
[root@mgm57 mha-soft-student]#

[root@mgm57 mha-soft-student]# tar -zxvf mha4mysql-manager-0.56.tar.gz //解压 mha-manager 软件包
mha4mysql-manager-0.56/
mha4mysql-manager-0.56/debian/
mha4mysql-manager-0.56/debian/control
mha4mysql-manager-0.56/debian/copyright
……
……

[root@mgm57 mha-soft-student]# ls
app1.cnf mha4mysql-manager-0.56
mha4mysql-node-0.56-0.el6.noarch.rpm
master_ip_failover mha4mysql-manager-0.56.tar.gz
```

```
[root@mgm57 mha-soft-student]# cd mha4mysql-manager-0.56  //进入源码目录
[root@mgm57 mha4mysql-manager-0.56]# ls //查看文件列表
AUTHORS  COPYING  inc  Makefile.PL  META.yml  rpm      t
bin      debian   lib  MANIFEST     README    samples  tests
[root@mgm57 mha4mysql-manager-0.56]#

[root@mgm57 mha4mysql-manager-0.56]# perl Makefile.PL //配置
*** Module::AutoInstall version 1.03
*** Checking for Perl dependencies...
[Core Features]
- DBI                 ...loaded. (1.627)
- DBD::mysql          ...loaded. (4.023)
- Time::HiRes         ...loaded. (1.9725)
- Config::Tiny        ...loaded. (2.14)
- Log::Dispatch       ...loaded. (2.41)
- Parallel::ForkManager ...loaded. (1.18)
- MHA::NodeConst      ...loaded. (0.56)
*** Module::AutoInstall configuration finished.
Checking if your kit is complete...
Looks good
Writing Makefile for mha4mysql::manager
Writing MYMETA.yml and MYMETA.json
[root@mgm57 mha4mysql-manager-0.56]#  make //编译
[root@mgm57 mha4mysql-manager-0.56]#  make install //安装

[root@mgm57 mha4mysql-manager-0.56]# ls /root/perl5/bin  //查看安装的命令
masterha_check_repl    masterha_conf_host      masterha_master_switch
masterha_check_ssh     masterha_manager        masterha_secondary_check
masterha_check_status  masterha_master_monitor  masterha_stop
```

2）编辑主配置文件

```
[root@mgm57 ~ ]#  mkdir  /etc/mha  //创建工作目录
[root@mgm57 ~ ]#  cp mha4mysql-manager-0.56/sample/conf/app1.cnf /etc/mha/ //拷贝模板文件
[root@mgm57 ~ ]#  vim /etc/mha/app1.cnf   //编辑主配置文件
    [server default]     //管理服务默认配置
            manager_workdir=/etc/mha    //工作目录
            manager_log=/etc/mha/manager.log   //日志文件
            master_ip_failover_script=/etc/mha/master_ip_failover //故障切换脚本
             ssh_user=root  //访问 ssh 服务用户
             ssh_port=22    //ssh 服务端口

             repl_user=repluser          //主服务器数据同步授权用户
             repl_password=123qqq...A    //密码

             user=root                 //监控用户
             password=123qqq...A           //密码
    [server1]   //指定第 1 台数据库服务器
    hostname=192.168.4.51  //服务器 ip 地址
    port=3306              //服务端口
```

```
    candidate_master=1              //竞选主服务器

[server2]  //指定第 2 台数据库服务器
hostname=192.168.4.52
port=3306
candidate_master=1

[server3]  //指定第 3 台数据库服务器
hostname=192.168.4.53
port=3306
candidate_master=1
:wq
```

3）创建故障切换脚本

```
[root@mgm57 ~]# cp mha-soft-student/master_ip_failover /etc/mha/

[root@mgm57 ~]# vim +35 /etc/mha/master_ip_failover
my $vip = '192.168.4.100/24';  # Virtual IP  //定义 VIP 地址
my $key = "1"; //定义变量$key
my $ssh_start_vip = "/sbin/ifconfig eth0:$key $vip"; //部署 vip 地址命令
my $ssh_stop_vip = "/sbin/ifconfig eth0:$key down"; //释放 vip 地址命令
:wq
[root@mgm57 ~]# chmod +x  /etc/mha/master_ip_failover //给脚本加执行权限
```

4）在当前主服务器部署 vip 地址

```
[root@host51 ~]# ifconfig  eth0:1  //部署之前查看
eth0:1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        ether 52:54:00:d8:10:d7  txqueuelen 1000  (Ethernet)

[root@host51 ~]# ifconfig  eth0:1  192.168.4.100  //部署 vip 地址

[root@host51 ~]# ifconfig  eth0:1 //部署后查看
eth0:1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.4.100  netmask 255.255.255.0  broadcast 192.168.4.255
        ether 52:54:00:d8:10:d7  txqueuelen 1000  (Ethernet)
```

步骤二：配置数据节点

1）在所有数据库服务器上，安装 mha-node 软件包

```
]# cd /root/mha-soft-student/
]#  rpm -ivh mha4mysql-node-0.56-0.el6.noarch.rpm
准备中...                          ################################# [100%]
正在升级/安装...
   1:mha4mysql-node-0.56-0.el6       ################################# [100%]
```

2）在所有数据服务器上添加监控用户

可以只在 host51 主机执行授权命令，host52 和 host53 会自动同步授权

```
]# mysql -uroot -p密码
mysql> grant all on  *.*  to root@"%" identified by "123qqq...A";
mysql> exit;
```

3）在 2 台从服务器上添加，数据同步连接用户

在从服务器 host52 添加用户

```
[root@host52]# mysql -uroot -p密码
mysql> grant replication slave on  *.*  to repluser@"%" identified by "123qqq...A";
mysql> exit;
```

在从服务器 host53 添加用户

```
[root@host53]# mysql -uroot -p密码
mysql> grant replication slave on  *.*  to repluser@"%" identified by "123qqq...A";
mysql> exit;
```

4）修改数据库服务运行参数

修改主服务器 host51

```
[root@host51 ~]# vim /etc/my.cnf
[mysqld]
plugin-load="rpl_semi_sync_master=semisync_master.so;rpl_semi_sync_slave=semisync_slave.so" //加载模块
rpl_semi_sync_master_enabled=1  //启用 master 模块
rpl_semi_sync_slave_enabled=1     //启用 slave 模块
relay_log_purge=0   //禁止自动删除中继日志文件
:wq
[root@host51 ~]#  systemctl  restart  mysqld  //重启服务
```

修改从服务器 host52

```
[root@host52 ~]# vim /etc/my.cnf
[mysqld]
log-bin=master52
plugin-load="rpl_semi_sync_master=semisync_master.so;rpl_semi_sync_slave=semisync_slave.so" //加载模块
rpl_semi_sync_master_enabled=1  //启用 master 模块
rpl_semi_sync_slave_enabled=1     //启用 slave 模块
relay_log_purge=0   //禁止自动删除中继日志文件
:wq
[root@host52 ~]#  systemctl  restart  mysqld  //重启服务
```

修改从服务器 host53

```
[root@host53 ~]# vim /etc/my.cnf
[mysqld]
log-bin=master53
plugin-load="rpl_semi_sync_master=semisync_master.so;rpl_semi_sync_slave=semisync_slave.so" //加载模块
rpl_semi_sync_master_enabled=1  //启用 master 模块
rpl_semi_sync_slave_enabled=1     //启用 slave 模块
relay_log_purge=0   //禁止自动删除中继日志文件
:wq
[root@host53 ~]#  systemctl  restart  mysqld  //重启服务
```

3. 案例 3：测试配置

- **问题**
  - 测试集群环境
  - 访问集群
  - 测试高可用
  - 修复故障服务器

- **步骤**

实现此案例需要按照如下步骤进行。

步骤一：测试集群环境

1）在管理主机，测试 ssh 配置

```
    [root@mgm57 ~]# masterha_check_ssh --conf=/etc/mha/app1.cnf //执行测试命令
    Thu Jun 20 15:33:48 2019 - [warning] Global configuration file
/etc/masterha_default.cnf not found. Skipping.
    Thu Jun 20 15:33:48 2019 - [info] Reading application default configuration from
/etc/mha/app1.cnf..
    Thu Jun 20 15:33:48 2019 - [info] Reading server configuration from
/etc/mha/app1.cnf..
    Thu Jun 20 15:33:48 2019 - [info] Starting SSH connection tests..
    Thu Jun 20 15:33:49 2019 - [debug]
    Thu Jun 20 15:33:48 2019 - [debug] Connecting via SSH from
root@192.168.4.51(192.168.4.51:22) to root@192.168.4.52(192.168.4.52:22)..
    Thu Jun 20 15:33:49 2019 - [debug] ok.
    Thu Jun 20 15:33:49 2019 - [debug] Connecting via SSH from
root@192.168.4.51(192.168.4.51:22) to root@192.168.4.53(192.168.4.53:22)..
    Thu Jun 20 15:33:49 2019 - [debug] ok.
    Thu Jun 20 15:33:50 2019 - [debug]
    Thu Jun 20 15:33:49 2019 - [debug] Connecting via SSH from
root@192.168.4.52(192.168.4.52:22) to root@192.168.4.51(192.168.4.51:22)..
    Thu Jun 20 15:33:49 2019 - [debug] ok.
    Thu Jun 20 15:33:49 2019 - [debug] Connecting via SSH from
root@192.168.4.52(192.168.4.52:22) to root@192.168.4.53(192.168.4.53:22)..
    Thu Jun 20 15:33:49 2019 - [debug] ok.
    Thu Jun 20 15:33:50 2019 - [debug] ok.
    Thu Jun 20 15:33:50 2019 - [debug] Connecting via SSH from
root@192.168.4.53(192.168.4.53:22) to root@192.168.4.52(192.168.4.52:22)..
    Thu Jun 20 15:33:50 2019 - [debug] ok.
    Thu Jun 20 15:33:51 2019 - [info] All SSH connection tests passed successfully.//
测试成功提示
```

2）在管理主机，测试主从同步

```
    [root@host57 ~]# masterha_check_repl --conf=/etc/mha/app1.cnf //执行测试命令
    Thu Jun 20 15:37:46 2019 - [info] Reading server configuration from
/etc/mha/app1.cnf..
    Thu Jun 20 15:37:46 2019 - [info] MHA::MasterMonitor version 0.56.
    Thu Jun 20 15:37:47 2019 - [info] GTID failover mode = 0
    Thu Jun 20 15:37:47 2019 - [info] Dead Servers: //没有停止的 mysql 服务器
    Thu Jun 20 15:37:47 2019 - [info] Alive Servers://运行 mysql 服务主机列表
```

```
    Thu Jun 20 15:37:47 2019 - [info]   192.168.4.51(192.168.4.51:3306)
    Thu Jun 20 15:37:47 2019 - [info]   192.168.4.52(192.168.4.52:3306)
    Thu Jun 20 15:37:47 2019 - [info]   192.168.4.53(192.168.4.53:3306)
    Thu Jun 20 15:37:47 2019 - [info] Alive Slaves:
    Thu Jun 20 15:37:47 2019 - [info]      Primary candidate for the new Master
(candidate_master is set)
    Thu Jun 20 15:37:47 2019 - [info]       192.168.4.53(192.168.4.53:3306)
Version=5.7.17-log (oldest major version between slaves) log-bin:enabled
    Thu Jun 20 15:37:47 2019 - [info]               Replicating from
192.168.4.51(192.168.4.51:3306)
    Thu Jun 20 15:37:47 2019 - [info]      Primary candidate for the new Master
(candidate_master is set)
    Thu Jun 20 15:37:47 2019 - [info]    Current Alive Master:
192.168.4.51(192.168.4.51:3306)
    Thu Jun 20 15:37:47 2019 - [info] Checking slave configurations..
    Thu Jun 20 15:37:47 2019 - [info]    read_only=1 is not set on slave
192.168.4.52(192.168.4.52:3306).
    Thu Jun 20 15:37:47 2019 - [info]    read_only=1 is not set on slave
192.168.4.53(192.168.4.53:3306).
    Thu Jun 20 15:37:47 2019 - [info] Checking replication filtering settings..
    Thu Jun 20 15:37:47 2019 - [info]  binlog_do_db= , binlog_ignore_db=
    Thu Jun 20 15:37:47 2019 - [info]  Replication filtering check ok.
    Thu Jun 20 15:37:47 2019 - [info] GTID (with auto-pos) is not supported
    Thu Jun 20 15:37:47 2019 - [info] Starting SSH connection tests..
    Thu Jun 20 15:37:49 2019 - [info] All SSH connection tests passed successfully.
    Thu Jun 20 15:37:49 2019 - [info] Checking MHA Node version..
    Thu Jun 20 15:37:50 2019 - [info]  Version check ok.
    Thu Jun 20 15:37:50 2019 - [info] Checking SSH publickey authentication settings on
the current master..
    Thu Jun 20 15:37:50 2019 - [info] HealthCheck: SSH to 192.168.4.51 is reachable.
    Thu Jun 20 15:37:50 2019 - [info] Master MHA Node version is 0.56.
    Thu Jun 20 15:37:50 2019 - [info] Checking recovery script configurations on
192.168.4.51(192.168.4.51:3306)..
    Thu Jun 20 15:37:50 2019 - [info]            Connecting to
root@192.168.4.51(192.168.4.51:22)..
      Creating /var/tmp if not exists..    ok.
      Checking output directory is accessible or not..
       ok.
      Binlog found at /var/lib/mysql, up to master51.000002
    Thu Jun 20 15:37:50 2019 - [info] Binlog setting check done.
    Thu Jun 20 15:37:50 2019 - [info] Checking SSH publickey authentication and checking
recovery script configurations on all alive slave servers..
    Thu Jun 20 15:37:50 2019 - [info]            Connecting to
root@192.168.4.52(192.168.4.52:22)..
      Checking slave recovery environment settings..
        Opening /var/lib/mysql/relay-log.info ... ok.
        Relay log found at /var/lib/mysql, up to host52-relay-bin.000006
        Temporary relay log file is /var/lib/mysql/host52-relay-bin.000006
        Testing mysql connection and privileges..mysql: [Warning] Using a password on
the command line interface can be insecure.
     done.
        Testing mysqlbinlog output.. done.
        Cleaning up test file(s).. done.
    Thu Jun 20 15:37:51 2019 - [info]   Executing command : apply_diff_relay_logs
--command=test --slave_user='root' --slave_host=192.168.4.53 --slave_ip=192.168.4.53
--slave_port=3306          --workdir=/var/tmp          --target_version=5.7.17-log
--manager_version=0.56              --relay_log_info=/var/lib/mysql/relay-log.info
--relay_dir=/var/lib/mysql/  --slave_pass=xxx
    Thu Jun 20 15:37:51 2019 - [info]            Connecting to
root@192.168.4.53(192.168.4.53:22)..
      Checking slave recovery environment settings..
        Opening /var/lib/mysql/relay-log.info ... ok.
        Relay log found at /var/lib/mysql, up to host53-relay-bin.000006
        Temporary relay log file is /var/lib/mysql/host53-relay-bin.000006
        Testing mysql connection and privileges..mysql: [Warning] Using a password on
```

```
the command line interface can be insecure.
     done.
        Testing mysqlbinlog output.. done.
        Cleaning up test file(s).. done.
    Thu Jun 20 15:37:52 2019 - [info] Slaves settings check done.
    Thu Jun 20 15:37:52 2019 - [info]
    192.168.4.51(192.168.4.51:3306) (current master)
     +--192.168.4.52(192.168.4.52:3306)
     +--192.168.4.53(192.168.4.53:3306)

    Thu Jun 20 15:37:52 2019 - [info] Checking replication health on 192.168.4.52..
    Thu Jun 20 15:37:52 2019 - [info]  ok.
    Thu Jun 20 15:37:52 2019 - [info] Checking replication health on 192.168.4.53..
    Thu Jun 20 15:37:52 2019 - [info]  ok.
    Thu Jun 20 15:37:52 2019 - [info] Checking master_ip_failover_script status:
    Thu Jun 20 15:37:52 2019 - [info]   /etc/mha/master_ip_failover --command=status
--ssh_user=root     --orig_master_host=192.168.4.51     --orig_master_ip=192.168.4.51
--orig_master_port=3306
    Thu Jun 20 15:37:52 2019 - [info]  OK.
    Thu Jun 20 15:37:52 2019 - [warning] shutdown_script is not defined.
    Thu Jun 20 15:37:52 2019 - [info] Got exit code 0 (Not master dead).

    MySQL Replication Health is OK.//测试成功提示信息
```

3）启动管理服务

```
    [root@mgm57 ~]# masterha_manager --conf=/etc/mha/app1.cnf
--remove_dead_master_conf \
    --ignore_last_failover //执行启动命令

    Thu  Jun  20  17:05:58  2019  -  [warning]  Global  configuration  file
/etc/masterha_default.cnf not found. Skipping.
    Thu Jun 20 17:05:58 2019 - [info] Reading application default configuration from
/etc/mha/app1.cnf..
    Thu  Jun  20  17:05:58  2019  -  [info]  Reading  server  configuration  from
/etc/mha/app1.cnf..
```

4）查看服务状态

```
    [root@mgm57 ~]#  masterha_check_status  --conf=/etc/mha/app1.cnf//执行命令
    app1 (pid:15806) is running(0:PING_OK), master:192.168.4.51 //服务运行，监视主服务
器 192.168.4.51
    [root@mgm57 ~]# ls /etc/mha/   //查看工作目录文件列表
    app1.cnf  app1.master_status.health  manager.log  master_ip_failover
```

步骤二：访问集群

1）在主服务器 51 添加访问数据的连接用户

```
    ]# mysql  -uroot -p123qqq...A
    mysql> create database db9;
    Query OK, 1 row affected (0.05 sec)

    mysql> create table db9.a (id int);
    Query OK, 0 rows affected (0.63 sec)

    mysql> grant select,insert on db9.* to yaya55@"%" identified by "123qqq...A";
    Query OK, 0 rows affected, 1 warning (0.08 sec)

    mysql>exit
```

2）客户端 50 连接 vip 地址访问集群

```
host50~]# mysql -h192.168.4.100  -uyaya55  -p123qqq...A
mysql> select  * from  db9.a;
mysql> insert into db9.a values(100);
mysql> select  * from db9.a;
+------+
| id   |
+------+
|  100 |
+------+
1 row in set (0.00 sec)
mysql>exit
```

3）在从服务器 host52 查看数据

```
 [root@host52 ~]# mysql -uroot -p123qqq...A -e "select  * from db9.a"
mysql: [Warning] Using a password on the command line interface can be insecure.
+------+
| id   |
+------+
|  100 |
+------+
```

4）在从服务器 host53 查看数据

```
[root@host53 ~]# mysql -uroot -p123qqq...A -e "select  * from db9.a"
mysql: [Warning] Using a password on the command line interface can be insecure.
+------+
| id   |
+------+
|  100 |
+------+
```

步骤三：测试高可用

1）停止主服务器 51 的 mysql 服务

```
host51~]# systemctl  stop  mysqld
```

2）查看管理服务 ， 输出的监控信息

```
 [root@mgm57~]#masterha_manager --conf=/etc/mha/app1.cnf
--remove_dead_master_conf \
> --ignore_last_failover
Thu Jun 20 17:05:58 2019 - [warning] Global configuration file
/etc/masterha_default.cnf not found. Skipping.
Thu Jun 20 17:05:58 2019 - [info] Reading application default configuration from
/etc/mha/app1.cnf..
Thu Jun 20 17:05:58 2019 - [info] Reading server configuration from
/etc/mha/app1.cnf..


  Creating /var/tmp if not exists..    ok.
  Checking output directory is accessible or not..
   ok.
```

```
    Binlog found at /var/lib/mysql, up to master51.000002
   Thu  Jun  20  17:35:59  2019  -  [warning]  Global  configuration  file
/etc/masterha_default.cnf not found. Skipping.
   Thu Jun 20 17:35:59 2019 - [info] Reading application default configuration from
/etc/mha/app1.cnf..
   Thu  Jun  20  17:35:59  2019  -  [info]  Reading  server  configuration  from
/etc/mha/app1.cnf..
   [root@host57 ~]#

   [root@mgm57 ~]# masterha_check_status  --conf=/etc/mha/app1.cnf
   app1 is stopped(2:NOT_RUNNING).  //监控到主服务器宕机 管理服务自动停止
   [root@mgm57 ~]#
```

3）客户端依然连接 vip 地址，可以访问到数据

```
   client50]# ping -c 2 192.168.4.100  //能够 ping 通 vip 地址
   PING 192.168.4.100 (192.168.4.100) 56(84) bytes of data.
   64 bytes from 192.168.4.100: icmp_seq=1 ttl=255 time=0.222 ms
   64 bytes from 192.168.4.100: icmp_seq=2 ttl=255 time=0.121 ms

   --- 192.168.4.71 ping statistics ---
   2 packets transmitted, 2 received, 0% packet loss, time 999ms
   rtt min/avg/max/mdev = 0.121/0.171/0.222/0.052 ms

   client50]# mysql -h192.168.4.100 -uyaya55 -p123qqq...A //连接 vip 地址
   mysql> insert into db9.a values(200); //插入记录
   mysql> select  * from db9.a;//查询记录
   +------+
   | id   |
   +------+
   |  100 |
   |  200 |
   +------+
```

4）查看 vip 地址

在 host52 主机查看到 vip 地址，说明 host52 主机被选举为主服务器

```
    [root@host52 ~]# ifconfig  eth0:1
   eth0:1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
          inet 192.168.4.100  netmask 255.255.255.0  broadcast 192.168.4.255
          ether 52:54:00:f5:c4:6a  txqueuelen 1000  (Ethernet)
```

在 host53 主机未查看到 vip 地址，说明 host53 主机是当前 host52 的从服务器

```
    [root@host53 ~]# ifconfig  eth0:1 //未查到 vip 地址
   eth0:1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
          ether 52:54:00:28:22:2e  txqueuelen 1000  (Ethernet)

   [root@host53 ~]# mysql -uroot -p123qqq...A -e "show slave status\G" | grep -i 192
   mysql: [Warning] Using a password on the command line interface can be insecure.
                  Master_Host: 192.168.4.52  //主服务器 Ip 地址
   [root@host53 ~]#
   [root@host53 ~]# mysql -uroot -p123qqq...A -e "show slave status\G" | grep -i yes
   mysql: [Warning] Using a password on the command line interface can be insecure.
              Slave_IO_Running: Yes  //IO 线程正常
             Slave_SQL_Running: Yes  //SQL 线程正常
```

```
    [root@host53 ~]# mysql -uroot -p123qqq...A -e "select  * from db9.a" //自动同步数据
    mysql: [Warning] Using a password on the command line interface can be insecure.
    +------+
    | id   |
    +------+
    |  100 |
    |  200 |
    +------+
```

步骤四：修复故障服务器

1）配置数据库服务器

启动 host51 主机的数据库服务

```
    host51~]# systemctl  start  mysqld
```

与主服务器数据一致

```
    [root@host52 ~]#  mysqldump -uroot -p123qqq...A  --master-data  db9 > db9.sql //在主服务器 host52 做完全备份
    mysqldump: [Warning] Using a password on the command line interface can be insecure.
    [root@host52 ~]#

    [root@host52 ~]# scp db9.sql  root@192.168.4.51:/root/  //拷贝备份文件给 host51 主机
    db9.sql  100% 1918     3.1MB/s   00:00
    [root@host52 ~]#

    host51 ~]# mysql -uroot -p123qqq...A db9 < /root/db9.sql//host51 主机使用备份文件恢复数据
    mysql: [Warning] Using a password on the command line interface can be insecure.
```

指定主服务器信息

```
    [root@host51 ~]# grep master52 /root/db9.sql  //查看日志名及偏移量
    CHANGE MASTER TO MASTER_LOG_FILE='master52.000001', MASTER_LOG_POS=895;

    [root@host51 ~]# mysql -uroot -p123qqq...A
    mysql>change master to master_host="192.168.4.52",master_user="repluser",master_password="123qqq...A",master_log_file="master52.000001",master_log_pos=895;
    Query OK, 0 rows affected, 2 warnings (0.14 sec)
```

启动 slave 进程

```
    mysql> start slave;
    Query OK, 0 rows affected (0.01 sec)
    Mysql> exit ;
```

查看状态信息

```
    [root@host51  ~]#  mysql  -uroot  -p123qqq...A  -e  "show  slave  status\G"  |grep 192.168.4.52
    mysql: [Warning] Using a password on the command line interface can be insecure.
```

```
                  Master_Host: 192.168.4.52 //主服务器 ip 地址

    [root@host51 ~]#
    [root@host51 ~]# mysql -uroot -p123qqq...A -e "show slave status\G" |grep -i yes
    mysql: [Warning] Using a password on the command line interface can be insecure.
               Slave_IO_Running: Yes //IO 线程状态正常
              Slave_SQL_Running: Yes //SQL 线程状态正常
    [root@host51 ~]#
```

2）配置管理服务器

修改配置文件，添加数据库服务器 host51

```
    ]# vim /etc/mha/app1.cnf
     [server1 ]
    hostname=192.168.4.51
    port=3306
    candidate_master=1
    :wq
```

测试集群环境

```
    [root@mgm57 ~]# masterha_check_ssh --conf=/etc/mha/app1.cnf //测试 SSH
    Thu Jun 20 15:33:48 2019 - [warning] Global configuration file
/etc/masterha_default.cnf not found. Skipping.
    Thu Jun 20 15:33:48 2019 - [info] Reading application default configuration from
/etc/mha/app1.cnf..
    Thu Jun 20 15:33:48 2019 - [info] Reading server configuration from
/etc/mha/app1.cnf..
    Thu Jun 20 15:33:48 2019 - [info] Starting SSH connection tests..
    Thu Jun 20 15:33:49 2019 - [debug]
    Thu Jun 20 15:33:48 2019 - [debug] Connecting via SSH from
root@192.168.4.51(192.168.4.51:22) to root@192.168.4.52(192.168.4.52:22)..
    Thu Jun 20 15:33:49 2019 - [debug] ok.
    Thu Jun 20 15:33:49 2019 - [debug] Connecting via SSH from
root@192.168.4.51(192.168.4.51:22) to root@192.168.4.53(192.168.4.53:22)..
    Thu Jun 20 15:33:49 2019 - [debug] ok.
    Thu Jun 20 15:33:50 2019 - [debug]
    Thu Jun 20 15:33:49 2019 - [debug] Connecting via SSH from
root@192.168.4.52(192.168.4.52:22) to root@192.168.4.51(192.168.4.51:22)..
    Thu Jun 20 15:33:49 2019 - [debug] ok.
    Thu Jun 20 15:33:49 2019 - [debug] Connecting via SSH from
root@192.168.4.52(192.168.4.52:22) to root@192.168.4.53(192.168.4.53:22)..
    Thu Jun 20 15:33:49 2019 - [debug] ok.
    Thu Jun 20 15:33:50 2019 - [debug] ok.
    Thu Jun 20 15:33:50 2019 - [debug] Connecting via SSH from
root@192.168.4.53(192.168.4.53:22) to root@192.168.4.52(192.168.4.52:22)..
    Thu Jun 20 15:33:50 2019 - [debug] ok.
    Thu Jun 20 15:33:51 2019 - [info] All SSH connection tests passed successfully.//
成功
     [root@mgm57 ~]# masterha_check_repl --conf=/etc/mha/app1.cnf//测试主从同步
    Thu Jun 20 15:37:46 2019 - [info] Reading server configuration from
/etc/mha/app1.cnf..
    Thu Jun 20 15:37:46 2019 - [info] MHA::MasterMonitor version 0.56.
    Thu Jun 20 15:37:47 2019 - [info] GTID failover mode = 0
    Thu Jun 20 15:37:47 2019 - [info] Dead Servers:
    Thu Jun 20 15:37:47 2019 - [info] Alive Servers:
    Thu Jun 20 15:37:47 2019 - [info]   192.168.4.51(192.168.4.51:3306)
    Thu Jun 20 15:37:47 2019 - [info]   192.168.4.52(192.168.4.52:3306)
```

```
    Thu Jun 20 15:37:47 2019 - [info]   192.168.4.53(192.168.4.53:3306)
    Thu Jun 20 15:37:47 2019 - [info] Alive Slaves:
    Thu Jun 20 15:37:47 2019 - [info]      Primary candidate for the new Master
(candidate_master is set)
    Thu Jun 20 15:37:47 2019 - [info]       192.168.4.53(192.168.4.53:3306)
Version=5.7.17-log (oldest major version between slaves) log-bin:enabled
    Thu Jun 20 15:37:47 2019 - [info]               Replicating from
192.168.4.51(192.168.4.51:3306)
    Thu Jun 20 15:37:47 2019 - [info]      Primary candidate for the new Master
(candidate_master is set)
    Thu Jun 20 15:37:47 2019 - [info]    Current Alive Master:
192.168.4.51(192.168.4.51:3306)
    Thu Jun 20 15:37:47 2019 - [info] Checking slave configurations..
    Thu Jun 20 15:37:47 2019 - [info]    read_only=1 is not set on slave
192.168.4.52(192.168.4.52:3306).
    Thu Jun 20 15:37:47 2019 - [info]    read_only=1 is not set on slave
192.168.4.53(192.168.4.53:3306).
    Thu Jun 20 15:37:47 2019 - [info] Checking replication filtering settings..
    Thu Jun 20 15:37:47 2019 - [info]  binlog_do_db= , binlog_ignore_db=
    Thu Jun 20 15:37:47 2019 - [info]  Replication filtering check ok.
    Thu Jun 20 15:37:47 2019 - [info] GTID (with auto-pos) is not supported
    Thu Jun 20 15:37:47 2019 - [info] Starting SSH connection tests..
    Thu Jun 20 15:37:49 2019 - [info] All SSH connection tests passed successfully.
    Thu Jun 20 15:37:49 2019 - [info] Checking MHA Node version..
    Thu Jun 20 15:37:50 2019 - [info]  Version check ok.
    Thu Jun 20 15:37:50 2019 - [info] Checking SSH publickey authentication settings on
the current master..
    Thu Jun 20 15:37:50 2019 - [info] HealthCheck: SSH to 192.168.4.51 is reachable.
    Thu Jun 20 15:37:50 2019 - [info] Master MHA Node version is 0.56.
    Thu Jun 20 15:37:50 2019 - [info] Checking recovery script configurations on
192.168.4.51(192.168.4.51:3306)..
    Thu Jun 20 15:37:50 2019 - [info]            Connecting to
root@192.168.4.51(192.168.4.51:22)..
      Creating /var/tmp if not exists..    ok.
      Checking output directory is accessible or not..
       ok.
      Binlog found at /var/lib/mysql, up to master51.000002
    Thu Jun 20 15:37:50 2019 - [info] Binlog setting check done.
    Thu Jun 20 15:37:50 2019 - [info] Checking SSH publickey authentication and checking
recovery script configurations on all alive slave servers..
    Thu Jun 20 15:37:50 2019 - [info]            Connecting to
root@192.168.4.52(192.168.4.52:22)..
      Checking slave recovery environment settings..
        Opening /var/lib/mysql/relay-log.info ... ok.
        Relay log found at /var/lib/mysql, up to host52-relay-bin.000006
        Temporary relay log file is /var/lib/mysql/host52-relay-bin.000006
        Testing mysql connection and privileges..mysql: [Warning] Using a password on
the command line interface can be insecure.
     done.
        Testing mysqlbinlog output.. done.
        Cleaning up test file(s).. done.
    Thu Jun 20 15:37:51 2019 - [info]            Connecting to
root@192.168.4.53(192.168.4.53:22)..
      Checking slave recovery environment settings..
        Opening /var/lib/mysql/relay-log.info ... ok.
        Relay log found at /var/lib/mysql, up to host53-relay-bin.000006
        Temporary relay log file is /var/lib/mysql/host53-relay-bin.000006
        Testing mysql connection and privileges..mysql: [Warning] Using a password on
the command line interface can be insecure.
     done.
        Testing mysqlbinlog output.. done.
        Cleaning up test file(s).. done.
    Thu Jun 20 15:37:52 2019 - [info] Slaves settings check done.
    Thu Jun 20 15:37:52 2019 - [info]
    192.168.4.51(192.168.4.51:3306) (current master)
```

```
     +--192.168.4.52(192.168.4.52:3306)
     +--192.168.4.53(192.168.4.53:3306)

    Thu Jun 20 15:37:52 2019 - [info] Checking replication health on 192.168.4.52..
    Thu Jun 20 15:37:52 2019 - [info]  ok.
    Thu Jun 20 15:37:52 2019 - [info] Checking replication health on 192.168.4.53..
    Thu Jun 20 15:37:52 2019 - [info]  ok.
    Thu Jun 20 15:37:52 2019 - [info] Checking master_ip_failover_script status:
    Thu Jun 20 15:37:52 2019 - [info]   /etc/mha/master_ip_failover --command=status
--ssh_user=root     --orig_master_host=192.168.4.51     --orig_master_ip=192.168.4.51
--orig_master_port=3306
    Thu Jun 20 15:37:52 2019 - [info]  OK.
    Thu Jun 20 15:37:52 2019 - [warning] shutdown_script is not defined.
    Thu Jun 20 15:37:52 2019 - [info] Got exit code 0 (Not master dead).

    MySQL Replication Health is OK. //成功
```

重启管理服务

```
    ]# masterha_stop  --conf=/etc/mha/app1.cnf //停止管理服务
    Stopped app1 successfully.

    ]# masterha_manager --conf=/etc/mha/app1.cnf  --remove_dead_master_conf \
    --ignore_last_failover //启动管理服务

    Thu Jun 20 17:05:58 2019 - [warning] Global configuration file
/etc/masterha_default.cnf not found. Skipping.
    Thu Jun 20 17:05:58 2019 - [info] Reading application default configuration from
/etc/mha/app1.cnf..
    Thu Jun 20 17:05:58 2019 - [info] Reading server configuration from
/etc/mha/app1.cnf..
```

查看状态

```
    mgm57 ~]# masterha_check_status  --conf=/etc/mha/app1.cnf
    app1 (pid:15806) is running(0:PING_OK), master:192.168.4.52 //服务运行，监视服务器
52
    [root@mgm57 ~]#
```