# MYSQL高可用集群架构-MHA架构

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## 前言

黑色字体是系统输出

红色字体手工**输入**

**黄底**红字是关键字

**蓝色字体是心得体会或解释说明**

**配**置文件会用圈起来

### 摘要

MHA 是当 MASTER 出现故障，挑选一个 SLAVE 作为新的 MASTER 并构建成新的

主从架构的管理工具。从 MASTER 出现故障到构建成新的主从架构时间是 10-30

秒。在 MASTER 出现故障时可能会出现 SLAVE 同步的数据不一致的现象，此工具

可以自动应用差异的中继日志到其他 SLAVE 上保证数据的一致性。

## 一、MHA优点

### 1.Master crash 时可以快速的进行故障切换。

MHA 是当 MASTER 出现故障，挑选一个 SLAVE 作为新的 MASTER 并构建成新的

主从架构的管理工具。从 MASTER 出现故障到构建成新的主从架构时间是 10-30

秒。在 MASTER 出现故障时可能会出现 SLAVE 同步的数据不一致的现象，此工具

可以自动应用差异的中继日志到其他 SLAVE 上保证数据的一致性。

### 2.Master crash 时可以最大化的减少数据丢失

当 master crash 时 MHA 自动检测选择数据同步最全的 slave，并把差异日

志应用到其他 slave 上， 以保障数据的一致性。结合使用 mysql

### 3.Semi-Synchronous Replication 可以最大化的减少数据的丢失。

MHA 的更改升级配置等不影响线上正在运行的数据库

使用 mha 不需要增加太多的服务器

MHA 由 MHA Manager 和 MHA Node 组成。 MHA Node 运行在 MYSQL 服务器上，

所以不会因为 MHA node 增加新的服务器。MHA Manager 通常需要独立运行在一

台服务器上，所以你需要增加一台服务器用于监控管理运行 MHA Manager，但

是一台服务器上的 MHA Manager 可以同时监控管理多达百台 master，所以总的

来说服务器增加不会太多。MHA Manger 也可以运行在一台 slave 上，这样总的

服务器数也不会增加。

#### 4.原来应用系统整体性能不会降低太多

MHA 工作在异步或半同步的主从架构上。当监控 master 时，MHA 会每隔几Mha 部署测试文档5秒 （默认 3 秒） 向 master 发出 ping 包并且不需要大的 sql 语句用于监控 master的健康状况。Slave 需要开启 binlog，整体性能不会有太大的降低。

#### 5.MHA 适合任何存储引擎

只要能主从复制的存储引擎它都支持，不限于支持事物的 innodb 引擎。

Mha 部署测试文档

## 二、安装基础环境

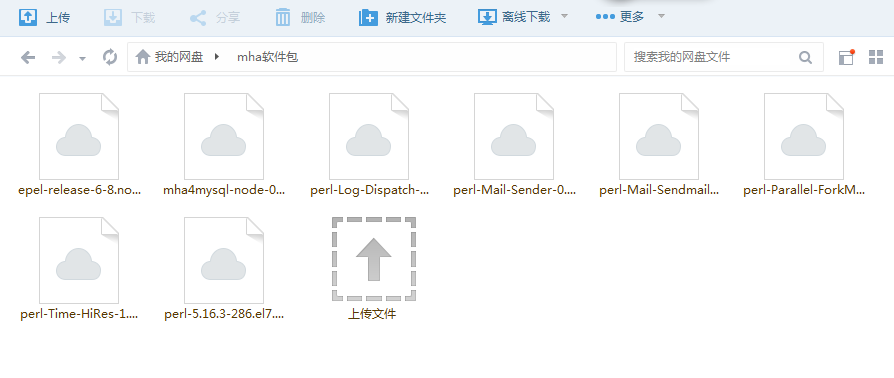
### 1、软件下载

系统镜像盘链接

链接：http://pan.baidu.com/s/1c10el2o 密码：7vmr

软件包链接：

方式一：百度云：链接：http://pan.baidu.com/s/1mhSojWW 密码：bpky



**方式二：官方下载**<https://code.google.com/p/mysql-master-ha/>**（需要翻墙，自备梯子）**

     添加一个yum源：wget [http://dl.fedoraproject.org/pub/ ... ease-5-4.noarch.rpm](http://dl.fedoraproject.org/pub/epel/5/x86_64/epel-release-5-4.noarch.rpm)

　　　　　　　　　　rpm -ivh epel-release-5-4.noarch.rpm**（亲测，可用）**

     Mha分manager节点和node节点。可以下载源码包，或者rpm包，随个人喜好，注意，版本与系统内核要匹配。

### 2、角色清单

|  |  |  |  |
| --- | --- | --- | --- |
| IP地址 | 主机名 | 角色 | 软件 |
| 172.28.7.202 | **rhel6-64-2** | **manager** | **mha4mysql-manager、mha4mysql-node** |
| 172.28.7.203 | **rhel6-64-3** | **master** | **mha4mysql-node** |
| 172.28.7.204 | **rhel6-64-4** | **Slave1** | **mha4mysql-node** |
| 172.28.7.205 | **rhel6-64-5** | **Slave2** | **mha4mysql-node** |

### 3、系统配置

　　配置如下：

|  |  |  |  |
| --- | --- | --- | --- |
| 系统 | 内核 | Mysql版本 | 内存 |
| Red Hat release 6.4 | **Linux version 2.6.32-358.el6.x86\_64** | **mysql Ver 14.14 Distrib 5.1.66** | **1G** |

**查看命令方式**

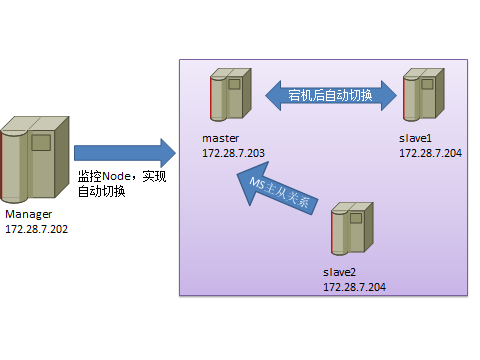
**[root@rhel6-64-2 ~]# cat /proc/version**

**Linux version 2.6.32-358.el6.x86\_64 (mockbuild@x86-022.build.eng.bos.redhat.com) (gcc version 4.4.7 20120313 (Red Hat 4.4.7-3) (GCC) ) #1 SMP Tue Jan 29 11:47:41 EST 2013**

**[root@rhel6-64-2 ~]# mysql -V**

**mysql Ver 14.14 Distrib 5.1.66, for redhat-linux-gnu (x86\_64) using readline 5.1**

### 4、架构图



### 5、主机环境配置（IP/DNS/HOSTS/免密码）

**主机名称**

**[root@rhel6-64-2 ~]# cat /etc/hosts**

**127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4**

**::1 localhost localhost.localdomain localhost6 localhost6.localdomain6**

**172.28.7.202 manager**

**172.28.7.203 master**

**172.28.7.204 slave1**

**172.28.7.205 slave2**

**[root@rhel6-64-2 ~]# scp /etc/hosts master:/etc/**

**hosts 100% 239 0.2KB/s 00:00**

**[root@rhel6-64-2 ~]# scp /etc/hosts slave1:/etc/**

**hosts 100% 239 0.2KB/s 00:00**

**[root@rhel6-64-2 ~]# scp /etc/hosts slave2:/etc/**

**hosts 100% 239 0.2KB/s 00:00**

**//我这里已经配置好了免密码，正常情况下会要求输入密码**

**IP/路由/dns地址**

**（略，但要保证可以访问外网，因为装软件包需要多种依赖包，默认光盘自带的软件包不够，需要用wget命令去公网下载）**

**Ssh免密码登录**

**[root@rhel6-64-2 ~]# ssh-keygen -t rsa**

**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: 回车**

**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:**

**1c:e6:0e:0f:85:5b:34:97:35:20:7d:77:c5:bd:a2:97 root@rhel6-64-1**

**The key's randomart image is:**

**+--[ RSA 2048]----+**

**| +.o+o .+|**

**| o +o ... +|**

**| . = . . ..|**

**| B . . . |**

**| + S . o |**

**| = . E |**

**| o . |**

**| |**

**| |**

**+-----------------+**

**[root@rhel6-64-5 ~]# ssh-copy-id 172.28.7.202**

**The authenticity of host '172.28.7.202 (172.28.7.202)' can't be established.**

**RSA key fingerprint is 64:32:50:c4:06:be:b6:e7:95:13:76:48:3b:e7:8b:aa.**

**Are you sure you want to continue connecting (yes/no)? yes**

**Warning: Permanently added '172.28.7.202' (RSA) to the list of known hosts.**

**root@172.28.7.202's password: 输入7.202的秘钥**

**Now try logging into the machine, with "ssh '172.28.7.202'", and check in:**

**.ssh/authorized\_keys**

**to make sure we haven't added extra keys that you weren't expecting.**

**[root@rhel6-64-5 ~]# ssh 172.28.7.202（再进行登录测试，以不输入密码直接登录为准）**

**Last login: Thu Sep 8 15:19:27 2016 from 192.168.255.251**

**其他台配置方法与以上一致 保证每台登录互相无交互**

**配置完成后每一个都登录一次 过程略配置后查看**

**最后查看授权的秘钥**

**[root@rhel6-64-2 ~]# cat .ssh/authorized\_keys**

**ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEA9OJqUQpcmfym4xVhMhf4chNyNgzUzT0y+89A5KBXwIv1nN3X9bMoXQhVzDWB2MlzqbZdVw4TgYyINfNpQtuFEa7nEUen8KDKACTtTU99xf8Wrzhsvm6hREEfKml1zrg46TFk3Yjil+3QDq7wefk2g12HYbJpE946Ffr49NilcgUrh6HimEW4eGgTQSpyLyfrd2VS9bUcJGxoEbpoeniZgpbHqT3hidhrCLTYzu2GBaNunZTPqbfljPp0SpCUVCBouAzjSj0j7xT6wer7X1BkHQU4ipqlGu/t3EEFhkrhKqh94Az5oM+K6g7zXbL5qhG+4JVhu/zY6ZmaOaDZ16kgJQ== root@rhel6-64-5**

**ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEAuuBt+8vSrz+4PTPcBE5ButQmgBOX93opESAxAqU1q/9fQA0Ytj+m80l4GgaxJNxJxYfaMNBo3eDPMzzLqVMHtG8j6IhKo3BBxeT9vbtHvOrgnxNy2MOJ9D+EDqMQ0r8IKQBwJbPCEDGGoBelJYnBDNO17doJ0UM1i5n4tLIeFwczIDbR7TNB/tym26Bv+yOmyrVsG7gOQT3mCoK6RSBC6fv0OAse00cjzYpfZnRAfldWTfqBsaibHqnoMWJpiqZH/gH3LoeFW3d7zwaU6kY0Oqux49sXGmI2UEgNfJhLaJbyXkc1JCD3UlISVWxNGi7kUCKz/bOjDxt5D15NdO/e0w== root@rhel6-64-2**

**ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEAzumZFvTs4bai/qOMTkjW5w+dL+hvyhnYsRbANVnmTbCTyB2sGW2VkY46r/FDcAtXYULdzwOpN9hE+rRb8HYT3YCjx5RdvY+wJzpd239lzwAY691AD7PBUOMbZUoyV/Bim5wFrAjLXUJ+ER4Cahcn/n5ZbkVmBH4E3X/xdHXQj6weAPawjLSUryRfFKPUg6G/8yjLPPR61WbznmAuOi0Lbw/U5L5Hf0SZ1CcT7R+GLyea6WxQ2H9MCdTCV5i+mrC8LqGaDBbuVXq5ZUeb7WjbkfpBkep1g+yFnSzTBXRSKXRyi9vK2CAD+zLhdrGKrmvtng0QeWxo77VkgQkD0CYzxQ== root@rhel6-64-3**

**ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEAxsAASxEYfJbn6/PCh3lXRwxAifrigpQsExpP/4WPRFa1aCw53zABEfbq8T0rjDS7oZXjbMZ/hnMA6okdG9hLypplW+UcMIfKiyaTAOhs2CDKvopsfATRZbALaewP7+LLf4haYUoNOK0DI3Y7YRzgXG0pEUgWMfeBlLldNIDv3b7+UzBIPSe1WComqqPlLav/PyS7VJxfNxDMZ5slkkmmi6UJYep5KvsRkF+Ci/cyaywJmzllH6OLDuI+cEJBH3KDxnui9td3/Llr3+LfLoxcyRZIXJD5NMQrtKYzW/OzAfeWsT4iMSK4d1Gqg+SXdNh+c3cqPyVh8qEvnCeIszBIoQ== root@rhel6-64-4**

### 6、.安装MYSQL

**服务器主从配置**

**在master/slave1/slave2安装MySQL数据库，简化实验过程使用yum 安装即可。**

**[root@rhel6-64-3 ~]# yum install -y mysql-server**

**……**

**Installed:**

**mysql-server.x86\_64 0:5.1.66-2.el6\_3**

**Dependency Installed:**

**mysql.x86\_64 0:5.1.66-2.el6\_3 mysql-libs.x86\_64 0:5.1.66-2.el6\_3**

**Complete!**

**[root@rhel6-64-3 ~]# service mysqld start**

**Starting mysqld: [ OK ]**

**yum安装过程manager/slave1/slave2完全相同，步骤略。**

### 7、配置MYSQL主从

**在master主机上修改my.cnf文件**

**[root@rhel6-64-3 ~]# cat /etc/my.cnf**

**[mysqld]**

**datadir=/var/lib/mysql**

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

**user=mysql**

**# Disabling symbolic-links is recommended to prevent assorted security risks**

**symbolic-links=0**

**log-bin=mysql-bin**

**server-id = 1**

**#红色标记部分为新增，注意不要添加到【mysql\_safe】里，开始做实验室的时候盲目添加，导致主从配置失败。**

**[mysqld\_safe]**

**log-error=/var/log/mysqld.log**

**pid-file=/var/run/mysqld/mysqld.pid**

**在slave1上修改my.cnf文件，添加红色自己内容**

**[root@rhel6-64-4 ~]# cat /etc/my.cnf**

**[mysqld]**

**datadir=/var/lib/mysql**

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

**user=mysql**

**# Disabling symbolic-links is recommended to prevent assorted security risks**

**symbolic-links=0**

**log-bin=mysql-bin**

**server-id = 2**

**relay\_log = /var/lib/mysql/mysql-relay-bin**

**log\_slave\_updates = 1**

**read\_only = 1**

**#注意每台机器的server-id 一定互不相同**

**[mysqld\_safe]**

**log-error=/var/log/mysqld.log**

**pid-file=/var/run/mysqld/mysqld.pid**

**修改slave2中my.cnf文件**

**[root@rhel6-64-5 ~]# cat /etc/my.cnf**

**[mysqld]**

**datadir=/var/lib/mysql**

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

**user=mysql**

**# Disabling symbolic-links is recommended to prevent assorted security risks**

**symbolic-links=0**

**log-bin=mysql-bin**

**server-id = 3**

**relay\_log = /var/lib/mysql/mysql-relay-bin**

**log\_slave\_updates = 1**

**read\_only = 1 #表示从服务器是只读的！**

**[mysqld\_safe]**

**log-error=/var/log/mysqld.log**

**pid-file=/var/run/mysqld/mysqld.pid**

**重启所有mysql服务**

**[root@rhel6-64-3 ~]# service mysqld restart**

**Stopping mysqld: [ OK ]**

**Starting mysqld: [ OK ]**

**进入master服务器中，授权qianmen用户给从服务器。**

[root@rhel6-64-3 ~]# mysql

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 6

Server version: 5.1.66-log Source distribution

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> grant replication slave, replication client on \*.\* to qianmen@'%' identified by '123456';

Query OK, 0 rows affected (0.00 sec)

**如果不放心可以slave主机进行登录测试，命令如下**

[root@rhel6-64-4 ~]# mysql -uqianmen -p123456 -hmaster

Welcome to the MySQL monitor.

**出现welcome表明成功**

查看主机状态，要求记录file文件名称和position

mysql> show master status;

+------------------+----------+--------------+------------------+

| File | Position | Binlog\_Do\_DB | Binlog\_Ignore\_DB |

+------------------+----------+--------------+------------------+

| mysql-bin.000010 | 788 | | |

+------------------+----------+--------------+------------------+

1 row in set (0.00 sec)

在2台从服务器上和主服务器进行同步

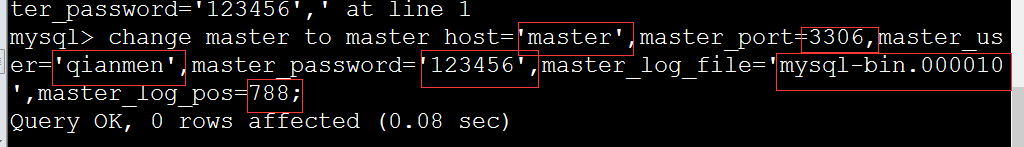
[root@rhel6-64-4 ~]# mysql

Welcome to the MySQL monitor.

。。。。。。

mysql> stop slave;

Query OK, 0 rows affected, 1 warning (0.00 sec)



将圈中的信息填写正确

mysql> change master to master\_host='master',master\_port=3306,master\_user='qianmen',master\_password='123456',master\_log\_file='mysql-bin.000003',master\_log\_pos=344;

mysql> start slave;

Query OK, 0 rows affected (0.01 sec)

mysql> show slave status\G

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 1. row \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Slave\_IO\_State: Waiting for master to send event

Master\_Host: master

Master\_User: qianmen

Master\_Port: 3306

Connect\_Retry: 60

Master\_Log\_File: mysql-bin.000010

Read\_Master\_Log\_Pos: 788

Relay\_Log\_File: mysql-relay-bin.000002

Relay\_Log\_Pos: 251

Relay\_Master\_Log\_File: mysql-bin.000010

Slave\_IO\_Running: Yes

Slave\_SQL\_Running: Yes

……

1 row in set (0.00 sec)

Slave2中进行相同操作，过程略！

之前操作一直失败，这里想说明2点

1授权用户不要给all，要有replication,MHA会在配置文件里要求能远程登录到数据库，所以要进行必要的赋权，

2一定看准了主服务器的file和position,填错了 slave I/O装填会变成No

然后再就是赋权了，之前的一步赋权操作是权限是只有replication,MHA会在配置文件里要求能远程登录到数据库，所以要进行必要的赋权。

在三台机器中都做如下操作：

mysql> grant all privileges on \*.\* to 'gongzi'@'%' identified by '123456';

mysql> flush privileges;

科普下mysql相关用户，及权限的命令，以下命令无需敲打，仅供参考和验证！

mysql> select user,host from mysql.user; 查看用户表

mysql> show grants for 'user2'@'%'; 查看授权用户

mysql> use mysql; 应用mysql数据库

mysql> drop user [user4@172.28.7.204](mailto:user4@172.28.7.204); 删除用户

## 三、安装配置MHA

### 1、安装准备工作

配置YUM源和依赖关系包

接下来就是开始正式安装MHA了，先安装节点包开始 四台机器都要安装！每台机器上安装yum的一个软件源EPEL，里面包含了许多基本源里没有的软件。

[root@rhel6-64-5 ~]# rpm -ivh http://dl.fedoraproject.org/pub/epel/6/x86\_64/epel-release-6-8.noarch.rpm

Retrieving http://dl.fedoraproject.org/pub/epel/6/x86\_64/epel-release-6-8.noarch.rpm

warning: /var/tmp/rpm-tmp.vKNo5c: Header V3 RSA/SHA256 Signature, key ID 0608b895: NOKEY

Preparing... ########################################### [100%]

package epel-release-6-8.noarch is already installed

安装完成后，会发现原来的yum仓库中多处2个文件



打开epel.repo

[root@rhel6-64-5 ~]# cat /etc/yum.repos.d/epel.repo

[epel]

name=Extra Packages for Enterprise Linux 6 - $basearch

baseurl=http://download.fedoraproject.org/pub/epel/6/$basearch #将注释的#去掉

#mirrorlist=https://mirrors.fedoraproject.org/metalink?repo=epel-6&arch=$basearch#前面加上#

failovermethod=priority

enabled=1

gpgcheck=1

gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-6

科普下什么是epel

如果既想获得 RHEL 的高质量、高性能、高可靠性，又需要方便易用(关键是免费)的软件包更新功能，那么 Fedora Project 推出的 EPEL(Extra Packages for Enterprise Linux)正好适合你。EPEL(http://fedoraproject.org/wiki/EPEL) 是由 Fedora 社区打造，为 RHEL 及衍生发行版如 CentOS、Scientific Linux 等提供高质量软件包的项目。

另外要把https改成http，如果不改会报错，报错原因写在最后解决中！

[root@rhel6-64-5 ~]# yum clean all

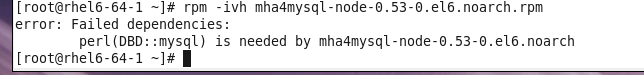
[root@rhel6-64-5 ~]# yum list

[root@rhel6-64-5 ~]# yum install perl-DBD-MySQL

MHA是perl编写的软件需要perl支持 之前yum安装mysql已经安装过了 如果没安装过需要安装这个依赖

[root@rhel6-64-5 ~]# yum -y install perl-DBD-MySQL perl-Config-Tiny perl-Log-Dispatch perl-Parallel-ForkManager --skip-broken

如果基础软件包不安装全，后续软件无法安装



以上操作每台都需要做，以下操作管理节点（manger）需要两个都安装，在3台数据库节点只要安装MHA的node节点!

### 2、安装Node

安装node节点！软件包可以本地rz上传，也可以使用

[root@rhel6-64-5~]#**rpm -Uvh** <http://mysql-master-ha.googlecode.com/files/mha4mysql-node-0.52-0.noarch.rpm>

去下载，但是需要翻墙

我这里已经上传完成！



[root@rhel6-64-5 ~]# rpm -ivh mha4mysql-node-0.53-0.el6.noarch.rpm

Preparing... ########################################### [100%]

1:mha4mysql-node ########################################### [100%]

如果安装不成功，请检查是否安装了，该包不需要epel！

[root@rhel6-64-5 ~]# yum install -y perl-DBD-MySQL

### 3、安装manager

安装之前需要安装一些依赖包

#yum install -y perl-DBD-MySQL

#yum install -y perl-Config-Tiny

#yum install -y perl-Log-Dispatch

#yum install -y perl-Parallel-ForkManager

#yum install -y perl-Config-IniFiles

本人亲测，不太好用！

也可以直接下载rpm包进行包装

[root@rhel6-64-2 download]# wget -P /root/download/ http://ftp.muug.mb.ca/mirror/centos/7/os/x86\_64/Packages/perl-5.16.3-286.el7.x86\_64.rpm

--2016-09-12 22:02:36-- http://ftp.muug.mb.ca/mirror/centos/7/os/x86\_64/Packages/perl-5.16.3-286.el7.x86\_64.rpm

Resolving ftp.muug.mb.ca... 208.81.1.244, 2605:e200:3:4::244

Connecting to ftp.muug.mb.ca|208.81.1.244|:80... connected.

HTTP request sent, awaiting response... 200 OK

Length: 8352488 (8.0M) [application/x-redhat-package-manager]

Saving to: ?.root/download/perl-5.16.3-286.el7.x86\_64.rpm?

100%[================>] 8,352,488 558K/s in 30s

2016-09-12 22:03:07 (268 KB/s) - ?.root/download/perl-5.16.3-286.el7.x86\_64.rpm?.saved

[8352488/8352488]

[root@rhel6-64-2 download]# wget -P /root/download http://dl.fedoraproject.org/pub/epel/6/i386/perl-Parallel-ForkManager-0.7.9-1.el6.noarch.rpm

--2016-09-12 22:05:06-- http://dl.fedoraproject.org/pub/epel/6/i386/perl-Parallel-ForkManager-0.7.9-1.el6.noarch.rpm

Resolving dl.fedoraproject.org... 209.132.181.26, 209.132.181.23, 209.132.181.24, ...

Connecting to dl.fedoraproject.org|209.132.181.26|:80... connected.

HTTP request sent, awaiting response... 200 OK

Length: 21740 (21K) [application/x-rpm]

Saving to: ?.root/download/perl-Parallel-ForkManager-0.7.9-1.el6.noarch.rpm?

100%[================>] 21,740 4.13K/s in 5.1s

2016-09-12 22:05:15 (4.13 KB/s) - ?.root/download/perl-Parallel-ForkManager-0.7.9-1.el6.noarch.rpm?.saved [21740/21740]

[root@rhel6-64-2 download]# wget -p /root/download/ http://downloads.naulinux.ru/pub/NauLinux/6x/i386/sites/School/RPMS/perl-Log-Dispatch-2.27-1.el6.noarch.rpm

/root/download/: Scheme missing.

--2016-09-12 22:29:49-- http://downloads.naulinux.ru/pub/NauLinux/6x/i386/sites/School/RPMS/perl-Log-Dispatch-2.27-1.el6.noarch.rpm

Resolving downloads.naulinux.ru... 91.151.181.167

Connecting to downloads.naulinux.ru|91.151.181.167|:80... connected.

HTTP request sent, awaiting response... 200 OK

Length: 71564 (70K) [application/x-rpm]

Saving to: ?.ownloads.naulinux.ru/pub/NauLinux/6x/i386/sites/School/RPMS/perl-Log-Dispatch-2.27-1.el6.noarch.rpm?

100%[================>] 71,564 119K/s in 0.6s

2016-09-12 22:29:50 (119 KB/s) - ?.ownloads.naulinux.ru/pub/NauLinux/6x/i386/sites/School/RPMS/perl-Log-Dispatch-2.27-1.el6.noarch.rpm?.saved [71564/71564]

FINISHED --2016-09-12 22:29:50--

Downloaded: 1 files, 70K in 0.6s (119 KB/s)

[root@rhel6-64-2 download]# ls

downloads.naulinux.ru

perl-5.16.3-286.el7.x86\_64.rpm

perl-Parallel-ForkManager-0.7.9-1.el6.noarch.rpm

[root@rhel6-64-2 download]# cat downloads.naulinux.ru/

cat: downloads.naulinux.ru/: Is a directory

[root@rhel6-64-2 download]# cd downloads.naulinux.ru/

[root@rhel6-64-2 downloads.naulinux.ru]# ls

pub

[root@rhel6-64-2 downloads.naulinux.ru]# cd pub/

[root@rhel6-64-2 pub]# ls

NauLinux

[root@rhel6-64-2 pub]# mv NauLinux/6x/i386/sites/School/RPMS/perl-Log-Dispatch-2.27-1.el6.noarch.rpm /root/download/

[root@rhel6-64-2 pub]# cd /root/download/

[root@rhel6-64-2 download]# ls

downloads.naulinux.ru #这是个路径，要把该路径最深处的rpm包安装，你也可以复制出来！

perl-5.16.3-286.el7.x86\_64.rpm

perl-Log-Dispatch-2.27-1.el6.noarch.rpm

perl-Parallel-ForkManager-0.7.9-1.el6.noarch.rpm

[root@rhel6-64-2 download]# wget [root@rhel6-64-2 download]# wget -P /root/download http://dl.fedoraproject.org/pub/epel/6/i386/perl-Parallel-ForkManager-0.7.9-1.el6.noarch.rpm

--2016-09-12 22:05:06-- http://dl.fedoraproject.org/pub/epel/6/i386/perl-Parallel-ForkManager-0.7.9-1.el6.noarch.rpm

Resolving dl.fedoraproject.org... 209.132.181.26, 209.132.181.23, 209.132.181.24, ...

Connecting to dl.fedoraproject.org|209.132.181.26|:80... connected.

HTTP request sent, awaiting response... 200 OK

Length: 21740 (21K) [application/x-rpm]

Saving to: ?.root/download/perl-Parallel-ForkManager-0.7.9-1.el6.noarch.rpm?

100%[================>] 21,740 4.13K/s in 5.1s

2016-09-12 22:05:15 (4.13 KB/s) - ?.root/download/perl-Parallel-ForkManager-0.7.9-1.el6.noarch.rpm?.saved [21740/21740]

[root@rhel6-64-2download]#http://dl.fedoraproject.org/pub/epel/6/i386/perl-Mail-Sender-0.8.16-3.el6.noarch.rpm

--2016-09-12 22:34:57-- http://dl.fedoraproject.org/pub/epel/6/i386/perl-Mail-Sender-0.8.16-3.el6.noarch.rpm

Resolving dl.fedoraproject.org... 209.132.181.26, 209.132.181.27, 209.132.181.23, ...

Connecting to dl.fedoraproject.org|209.132.181.26|:80... connected.

HTTP request sent, awaiting response... 200 OK

Length: 55224 (54K) [application/x-rpm]

Saving to: ?.erl-Mail-Sender-0.8.16-3.el6.noarch.rpm?

100%[================>] 55,224 9.12K/s in 11s

2016-09-12 22:35:09 (4.87 KB/s) - ?.erl-Mail-Sender-0.8.16-3.el6.noarch.rpm?.saved [55224/55224]

[root@rhel6-64-2 download]# wget http://dl.fedoraproject.org/pub/epel/6/i386/perl-Mail-Sendmail-0.79-12.el6.noarch.rpm

--2016-09-12 22:38:53-- http://dl.fedoraproject.org/pub/epel/6/i386/perl-Mail-Sendmail-0.79-12.el6.noarch.rpm

Resolving dl.fedoraproject.org... 209.132.181.24, 209.132.181.25, 209.132.181.26, ...

Connecting to dl.fedoraproject.org|209.132.181.24|:80... connected.

HTTP request sent, awaiting response... 200 OK

Length: 28448 (28K) [application/x-rpm]

Saving to: ?.erl-Mail-Sendmail-0.79-12.el6.noarch.rpm?

100%[================>] 28,448 6.61K/s in 4.2s

2016-09-12 22:39:03 (6.61 KB/s) - ?.erl-Mail-Sendmail-0.79-12.el6.noarch.rpm?.saved [28448/28448]

[root@rhel6-64-2 download]# wget http://mirror.centos.org/centos/6/os/x86\_64/Packages/perl-Time-HiRes-1.9721-141.el6\_7.1.x86\_64.rpm

--2016-09-12 22:41:37-- http://mirror.centos.org/centos/6/os/x86\_64/Packages/perl-Time-HiRes-1.9721-141.el6\_7.1.x86\_64.rpm

Resolving mirror.centos.org... 103.27.60.52, 2605:9000:401:102::2

Connecting to mirror.centos.org|103.27.60.52|:80... connected.

HTTP request sent, awaiting response... 200 OK

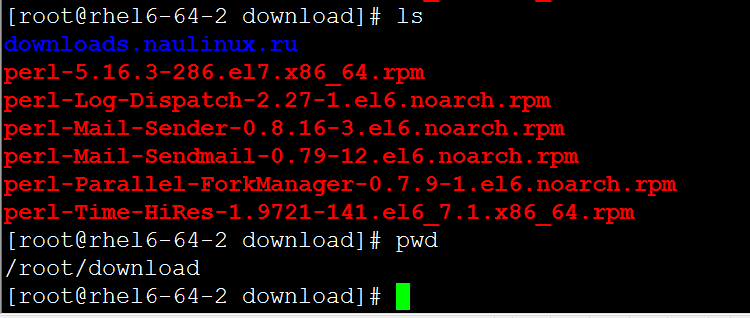
Length: 50352 (49K) [application/x-rpm]

Saving to: ?.erl-Time-HiRes-1.9721-141.el6\_7.1.x86\_64.rpm?

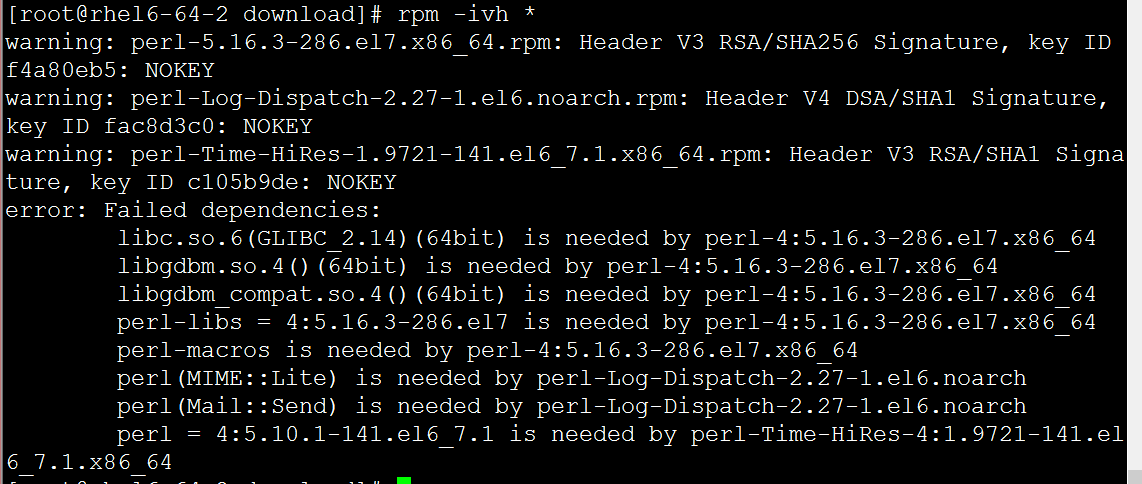
100%[================>] 50,352 216K/s in 0.2s

2016-09-12 22:41:43 (216 KB/s) - ?.erl-Time-HiRes-1.9721-141.el6\_7.1.x86\_64.rpm?.saved [50352/50352]

下载完毕，对比下下载的包



全部安装比较不容易



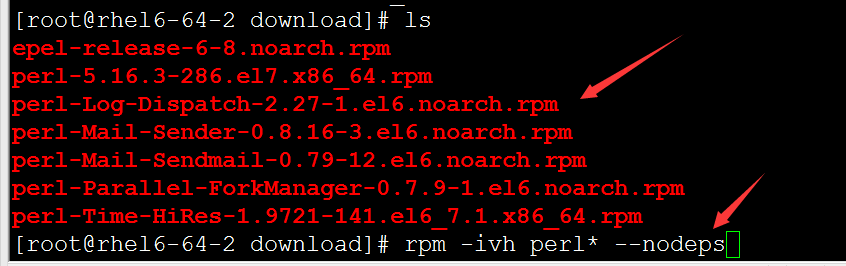
总结下需要依赖安装4个包

perl-4:5.16.3-286.el7.x86\_64

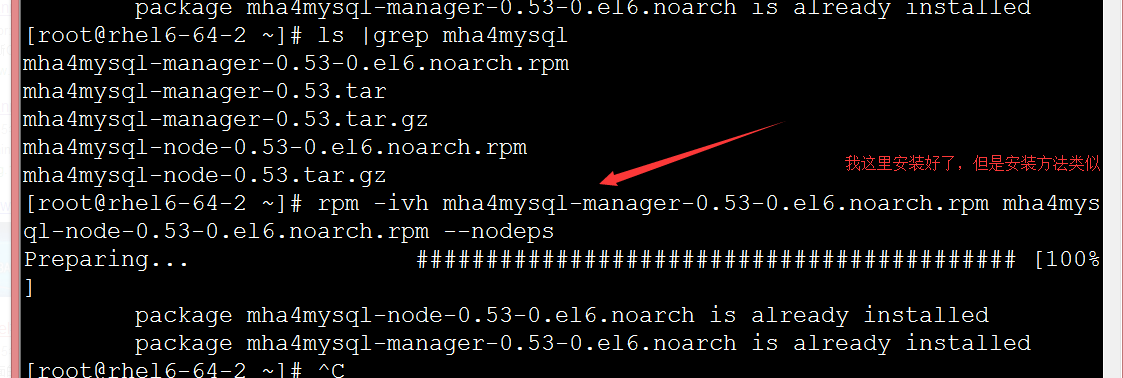
perl-Log-Dispatch-2.27-1.el6.noarch

perl-Time-HiRes-4:1.9721-141.el6\_7.1.x86\_64

这里我用了挺暴力的方式同时进行的安装，不是特别推荐以后有好的方法，我再回来修改！



即便是manager的包，也同样用—nodeps的参数



**[root@rhel6-64-2 ~]# rpm -qa|grep mha4mysql-**

**mha4mysql-manager-0.53-0.el6.noarch**

**mha4mysql-node-0.53-0.el6.noarch**

**安装完成**

**这里没有使用tar包安装，因为之前用tar包进行编译安装，发现测试命令无法执行，不知道哪里出了问题，有机会请教下大神，昨天这里耽误了2个多小时！**

### 4、配置

**配置mha配置文件**

**[root@rhel6-64-2 ~]# mkdir -p /etc/masterha/app1**

**[root@rhel6-64-2 ~]# mkdir -p /var/lib/mysql/**

**[root@rhel6-64-2 ~]# touch /etc/masterha/app1/manager.log**

**[root@rhel6-64-2 ~]# vi /etc/masterha/app1.cnf**

**[root@rhel6-64-2 ~]# cat /etc/masterha/app1.cnf**

**[server default]**

**manager\_workdir=/etc/masterha/app1**

**manager\_log=/etc/masterha/app1/manager.log**

**#日志文件及其路径，需要手动创建**

**user=gongzi**

**password=123456**

**#之前数据库远程登录的**

**ssh\_user=root**

**#用于测试ssh登录的**

**repl\_user=qianmen**

**repl\_password=123456**

**#千门做主从的用户 这个也是每一台都要授权的**

**[server1]**

**hostname=172.28.7.203**

**port=3306**

**master\_binlog\_dir=/var/lib/mysql**

**candidate\_master=1**

**check\_repl\_delay=0**

**#/var/lib/mysql这里路径也需要手工创建**

**[server2]**

**hostname=172.28.7.204**

**port=3306**

**master\_binlog\_dir=/var/lib/mysql**

**candidate\_master=1**

**check\_repl\_delay=0**

**[server3]**

**hostname=172.28.7.205**

**port=3306**

**master\_binlog\_dir=/var/lib/mysql**

**ignore\_fail=1**

**no\_master=1**

## 四、测试

### 1、测试SSH

[root@rhel6-64-2 ~]# masterha\_check\_ssh --conf=/etc/masterha/app1.cnf

Fri Sep 9 23:05:39 2016 - [warning] Global configuration file /etc/masterha\_default.cnf not found. Skipping.

Fri Sep 9 23:05:39 2016 - [info] Reading application default configurations from /etc/masterha/app1.cnf..

Fri Sep 9 23:05:39 2016 - [info] Reading server configurations from /etc/masterha/app1.cnf..

Fri Sep 9 23:05:39 2016 - [info] Starting SSH connection tests..

Fri Sep 9 23:05:41 2016 - [debug]

Fri Sep 9 23:05:39 2016 - [debug] Connecting via SSH from root@172.28.7.203(172.28.7.203:22) to root@172.28.7.204(172.28.7.204:22)..

Fri Sep 9 23:05:40 2016 - [debug] ok.

Fri Sep 9 23:05:40 2016 - [debug] Connecting via SSH from root@172.28.7.203(172.28.7.203:22) to root@172.28.7.205(172.28.7.205:22)..

Fri Sep 9 23:05:41 2016 - [debug] ok.

Fri Sep 9 23:05:42 2016 - [debug]

Fri Sep 9 23:05:39 2016 - [debug] Connecting via SSH from root@172.28.7.204(172.28.7.204:22) to root@172.28.7.203(172.28.7.203:22)..

Fri Sep 9 23:05:40 2016 - [debug] ok.

Fri Sep 9 23:05:40 2016 - [debug] Connecting via SSH from root@172.28.7.204(172.28.7.204:22) to root@172.28.7.205(172.28.7.205:22)..

Fri Sep 9 23:05:42 2016 - [debug] ok.

Fri Sep 9 23:05:42 2016 - [debug]

Fri Sep 9 23:05:40 2016 - [debug] Connecting via SSH from root@172.28.7.205(172.28.7.205:22) to root@172.28.7.203(172.28.7.203:22)..

Fri Sep 9 23:05:41 2016 - [debug] ok.

Fri Sep 9 23:05:41 2016 - [debug] Connecting via SSH from root@172.28.7.205(172.28.7.205:22) to root@172.28.7.204(172.28.7.204:22)..

Fri Sep 9 23:05:42 2016 - [debug] ok.

Fri Sep 9 23:05:42 2016 - [info] All SSH connection tests passed successfully.

**这里如果出现问题，一定需要反复检查4台主机之间是否都具备免密码登录的条件。**

### 2、测试repl

[root@rhel6-64-2 ~]# masterha\_check\_repl --conf=/etc/masterha/app1.cnf

Fri Sep 9 22:39:56 2016 - [warning] Global configuration file /etc/masterha\_default.cnf not found. Skipping.

Fri Sep 9 22:39:56 2016 - [info] Reading application default configurations from /etc/masterha/app1.cnf..

Fri Sep 9 22:39:56 2016 - [info] Reading server configurations from /etc/masterha/app1.cnf..

Fri Sep 9 22:39:56 2016 - [info] MHA::MasterMonitor version 0.53.

Fri Sep 9 22:39:57 2016 - [info] Dead Servers:

Fri Sep 9 22:39:57 2016 - [info] Alive Servers:

Fri Sep 9 22:39:57 2016 - [info] 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 22:39:57 2016 - [info] 172.28.7.204(172.28.7.204:3306)

Fri Sep 9 22:39:57 2016 - [info] 172.28.7.205(172.28.7.205:3306)

Fri Sep 9 22:39:57 2016 - [info] Alive Slaves:

Fri Sep 9 22:39:57 2016 - [info] 172.28.7.204(172.28.7.204:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 22:39:57 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 22:39:57 2016 - [info] Primary candidate for the new Master (candidate\_master is set)

Fri Sep 9 22:39:57 2016 - [info] 172.28.7.205(172.28.7.205:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 22:39:57 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 22:39:57 2016 - [info] Not candidate for the new Master (no\_master is set)

Fri Sep 9 22:39:57 2016 - [info] Current Alive Master: 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 22:39:57 2016 - [info] Checking slave configurations..

Fri Sep 9 22:39:57 2016 - [info] read\_only=1 is not set on slave 172.28.7.204(172.28.7.204:3306).

Fri Sep 9 22:39:57 2016 - [warning] relay\_log\_purge=0 is not set on slave 172.28.7.204(172.28.7.204:3306).

Fri Sep 9 22:39:57 2016 - [warning] relay\_log\_purge=0 is not set on slave 172.28.7.205(172.28.7.205:3306).

Fri Sep 9 22:39:57 2016 - [info] Checking replication filtering settings..

Fri Sep 9 22:39:57 2016 - [info] binlog\_do\_db= , binlog\_ignore\_db=

Fri Sep 9 22:39:57 2016 - [info] Replication filtering check ok.

Fri Sep 9 22:39:57 2016 - [info] Starting SSH connection tests..

Fri Sep 9 22:40:01 2016 - [info] All SSH connection tests passed successfully.

Fri Sep 9 22:40:01 2016 - [info] Checking MHA Node version..

Fri Sep 9 22:40:02 2016 - [info] Version check ok.

Fri Sep 9 22:40:02 2016 - [info] Checking SSH publickey authentication settings on the current master..

Fri Sep 9 22:40:03 2016 - [info] HealthCheck: SSH to 172.28.7.203 is reachable.

Fri Sep 9 22:40:03 2016 - [info] Master MHA Node version is 0.53.

Fri Sep 9 22:40:03 2016 - [info] Checking recovery script configurations on the current master..

Fri Sep 9 22:40:03 2016 - [info] Executing command: save\_binary\_logs --command=test --start\_pos=4 --binlog\_dir=/var/lib/mysql --output\_file=/var/tmp/save\_binary\_logs\_test --manager\_version=0.53 --start\_file=mysql-bin.000013

Fri Sep 9 22:40:03 2016 - [info] Connecting to root@172.28.7.203(172.28.7.203)..

Creating /var/tmp if not exists.. ok.

Checking output directory is accessible or not..

ok.

Binlog found at /var/lib/mysql, up to mysql-bin.000013

Fri Sep 9 22:40:04 2016 - [info] Master setting check done.

Fri Sep 9 22:40:04 2016 - [info] Checking SSH publickey authentication and checking recovery script configurations on all alive slave servers..

Fri Sep 9 22:40:04 2016 - [info] Executing command : apply\_diff\_relay\_logs --command=test --slave\_user=gongzi --slave\_host=172.28.7.204 --slave\_ip=172.28.7.204 --slave\_port=3306 --workdir=/var/tmp --target\_version=5.1.66-log --manager\_version=0.53 --relay\_log\_info=/var/lib/mysql/relay-log.info --relay\_dir=/var/lib/mysql/ --slave\_pass=xxx

Fri Sep 9 22:40:04 2016 - [info] Connecting to root@172.28.7.204(172.28.7.204:22)..

Checking slave recovery environment settings..

Opening /var/lib/mysql/relay-log.info ... ok.

Relay log found at /var/lib/mysql, up to mysql-relay-bin.000002

Temporary relay log file is /var/lib/mysql/mysql-relay-bin.000002

Testing mysql connection and privileges.. done.

Testing mysqlbinlog output.. done.

Cleaning up test file(s).. done.

Fri Sep 9 22:40:05 2016 - [info] Executing command : apply\_diff\_relay\_logs --command=test --slave\_user=gongzi --slave\_host=172.28.7.205 --slave\_ip=172.28.7.205 --slave\_port=3306 --workdir=/var/tmp --target\_version=5.1.66-log --manager\_version=0.53 --relay\_log\_info=/var/lib/mysql/relay-log.info --relay\_dir=/var/lib/mysql/ --slave\_pass=xxx

Fri Sep 9 22:40:05 2016 - [info] Connecting to root@172.28.7.205(172.28.7.205:22)..

Checking slave recovery environment settings..

Opening /var/lib/mysql/relay-log.info ... ok.

Relay log found at /var/lib/mysql, up to mysql-relay-bin.000002

Temporary relay log file is /var/lib/mysql/mysql-relay-bin.000002

Testing mysql connection and privileges.. done.

Testing mysqlbinlog output.. done.

Cleaning up test file(s).. done.

Fri Sep 9 22:40:05 2016 - [info] Slaves settings check done.

Fri Sep 9 22:40:05 2016 - [info]

172.28.7.203 (current master)

+--172.28.7.204

+--172.28.7.205

Fri Sep 9 22:40:05 2016 - [info] Checking replication health on 172.28.7.204..

Fri Sep 9 22:40:05 2016 - [info] ok.

Fri Sep 9 22:40:05 2016 - [info] Checking replication health on 172.28.7.205..

Fri Sep 9 22:40:05 2016 - [info] ok.

Fri Sep 9 22:40:05 2016 - [warning] master\_ip\_failover\_script is not defined.

Fri Sep 9 22:40:05 2016 - [warning] shutdown\_script is not defined.

Fri Sep 9 22:40:05 2016 - [info] Got exit code 0 (Not master dead).

MySQL Replication Health is OK.

[root@rhel6-64-2 ~]# masterha\_check\_ssh --conf=/etc/masterha/app1.cnf

Fri Sep 9 23:05:39 2016 - [warning] Global configuration file /etc/masterha\_default.cnf not found. Skipping.

Fri Sep 9 23:05:39 2016 - [info] Reading application default configurations from /etc/masterha/app1.cnf..

Fri Sep 9 23:05:39 2016 - [info] Reading server configurations from /etc/masterha/app1.cnf..

Fri Sep 9 23:05:39 2016 - [info] Starting SSH connection tests..

Fri Sep 9 23:05:41 2016 - [debug]

Fri Sep 9 23:05:39 2016 - [debug] Connecting via SSH from root@172.28.7.203(172.28.7.203:22) to root@172.28.7.204(172.28.7.204:22)..

Fri Sep 9 23:05:40 2016 - [debug] ok.

Fri Sep 9 23:05:40 2016 - [debug] Connecting via SSH from root@172.28.7.203(172.28.7.203:22) to root@172.28.7.205(172.28.7.205:22)..

Fri Sep 9 23:05:41 2016 - [debug] ok.

Fri Sep 9 23:05:42 2016 - [debug]

Fri Sep 9 23:05:39 2016 - [debug] Connecting via SSH from root@172.28.7.204(172.28.7.204:22) to root@172.28.7.203(172.28.7.203:22)..

Fri Sep 9 23:05:40 2016 - [debug] ok.

Fri Sep 9 23:05:40 2016 - [debug] Connecting via SSH from root@172.28.7.204(172.28.7.204:22) to root@172.28.7.205(172.28.7.205:22)..

Fri Sep 9 23:05:42 2016 - [debug] ok.

Fri Sep 9 23:05:42 2016 - [debug]

Fri Sep 9 23:05:40 2016 - [debug] Connecting via SSH from root@172.28.7.205(172.28.7.205:22) to root@172.28.7.203(172.28.7.203:22)..

Fri Sep 9 23:05:41 2016 - [debug] ok.

Fri Sep 9 23:05:41 2016 - [debug] Connecting via SSH from root@172.28.7.205(172.28.7.205:22) to root@172.28.7.204(172.28.7.204:22)..

Fri Sep 9 23:05:42 2016 - [debug] ok.

Fri Sep 9 23:05:42 2016 - [info] All SSH connection tests passed successfully.

[root@rhel6-64-2 ~]# masterha\_check\_repl --conf=/etc/masterha/app1.cnf

Fri Sep 9 23:07:54 2016 - [warning] Global configuration file /etc/masterha\_default.cnf not found. Skipping.

Fri Sep 9 23:07:54 2016 - [info] Reading application default configurations from /etc/masterha/app1.cnf..

Fri Sep 9 23:07:54 2016 - [info] Reading server configurations from /etc/masterha/app1.cnf..

Fri Sep 9 23:07:54 2016 - [info] MHA::MasterMonitor version 0.53.

Fri Sep 9 23:07:55 2016 - [info] Dead Servers:

Fri Sep 9 23:07:55 2016 - [info] Alive Servers:

Fri Sep 9 23:07:55 2016 - [info] 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:07:55 2016 - [info] 172.28.7.204(172.28.7.204:3306)

Fri Sep 9 23:07:55 2016 - [info] 172.28.7.205(172.28.7.205:3306)

Fri Sep 9 23:07:55 2016 - [info] Alive Slaves:

Fri Sep 9 23:07:55 2016 - [info] 172.28.7.204(172.28.7.204:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:07:55 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:07:55 2016 - [info] Primary candidate for the new Master (candidate\_master is set)

Fri Sep 9 23:07:55 2016 - [info] 172.28.7.205(172.28.7.205:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:07:55 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:07:55 2016 - [info] Not candidate for the new Master (no\_master is set)

Fri Sep 9 23:07:55 2016 - [info] Current Alive Master: 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:07:55 2016 - [info] Checking slave configurations..

Fri Sep 9 23:07:55 2016 - [info] read\_only=1 is not set on slave 172.28.7.204(172.28.7.204:3306).

Fri Sep 9 23:07:55 2016 - [warning] relay\_log\_purge=0 is not set on slave 172.28.7.204(172.28.7.204:3306).

Fri Sep 9 23:07:55 2016 - [warning] relay\_log\_purge=0 is not set on slave 172.28.7.205(172.28.7.205:3306).

Fri Sep 9 23:07:55 2016 - [info] Checking replication filtering settings..

Fri Sep 9 23:07:55 2016 - [info] binlog\_do\_db= , binlog\_ignore\_db=

Fri Sep 9 23:07:55 2016 - [info] Replication filtering check ok.

Fri Sep 9 23:07:55 2016 - [info] Starting SSH connection tests..

Fri Sep 9 23:07:59 2016 - [info] All SSH connection tests passed successfully.

Fri Sep 9 23:07:59 2016 - [info] Checking MHA Node version..

Fri Sep 9 23:08:00 2016 - [info] Version check ok.

Fri Sep 9 23:08:00 2016 - [info] Checking SSH publickey authentication settings on the current master..

Fri Sep 9 23:08:01 2016 - [info] HealthCheck: SSH to 172.28.7.203 is reachable.

Fri Sep 9 23:08:01 2016 - [info] Master MHA Node version is 0.53.

Fri Sep 9 23:08:01 2016 - [info] Checking recovery script configurations on the current master..

Fri Sep 9 23:08:01 2016 - [info] Executing command: save\_binary\_logs --command=test --start\_pos=4 --binlog\_dir=/var/lib/mysql --output\_file=/var/tmp/save\_binary\_logs\_test --manager\_version=0.53 --start\_file=mysql-bin.000013

Fri Sep 9 23:08:01 2016 - [info] Connecting to root@172.28.7.203(172.28.7.203)..

Creating /var/tmp if not exists.. ok.

Checking output directory is accessible or not..

ok.

Binlog found at /var/lib/mysql, up to mysql-bin.000013

Fri Sep 9 23:08:02 2016 - [info] Master setting check done.

Fri Sep 9 23:08:02 2016 - [info] Checking SSH publickey authentication and checking recovery script configurations on all alive slave servers..

Fri Sep 9 23:08:02 2016 - [info] Executing command : apply\_diff\_relay\_logs --command=test --slave\_user=gongzi --slave\_host=172.28.7.204 --slave\_ip=172.28.7.204 --slave\_port=3306 --workdir=/var/tmp --target\_version=5.1.66-log --manager\_version=0.53 --relay\_log\_info=/var/lib/mysql/relay-log.info --relay\_dir=/var/lib/mysql/ --slave\_pass=xxx

Fri Sep 9 23:08:02 2016 - [info] Connecting to root@172.28.7.204(172.28.7.204:22)..

Checking slave recovery environment settings..

Opening /var/lib/mysql/relay-log.info ... ok.

Relay log found at /var/lib/mysql, up to mysql-relay-bin.000002

Temporary relay log file is /var/lib/mysql/mysql-relay-bin.000002

Testing mysql connection and privileges.. done.

Testing mysqlbinlog output.. done.

Cleaning up test file(s).. done.

Fri Sep 9 23:08:03 2016 - [info] Executing command : apply\_diff\_relay\_logs --command=test --slave\_user=gongzi --slave\_host=172.28.7.205 --slave\_ip=172.28.7.205 --slave\_port=3306 --workdir=/var/tmp --target\_version=5.1.66-log --manager\_version=0.53 --relay\_log\_info=/var/lib/mysql/relay-log.info --relay\_dir=/var/lib/mysql/ --slave\_pass=xxx

Fri Sep 9 23:08:03 2016 - [info] Connecting to root@172.28.7.205(172.28.7.205:22)..

Checking slave recovery environment settings..

Opening /var/lib/mysql/relay-log.info ... ok.

Relay log found at /var/lib/mysql, up to mysql-relay-bin.000002

Temporary relay log file is /var/lib/mysql/mysql-relay-bin.000002

Testing mysql connection and privileges.. done.

Testing mysqlbinlog output.. done.

Cleaning up test file(s).. done.

Fri Sep 9 23:08:03 2016 - [info] Slaves settings check done.

Fri Sep 9 23:08:03 2016 - [info]

172.28.7.203 (current master)

+--172.28.7.204

+--172.28.7.205

Fri Sep 9 23:08:03 2016 - [info] Checking replication health on 172.28.7.204..

Fri Sep 9 23:08:03 2016 - [info] ok.

Fri Sep 9 23:08:03 2016 - [info] Checking replication health on 172.28.7.205..

Fri Sep 9 23:08:03 2016 - [info] ok.

Fri Sep 9 23:08:03 2016 - [warning] master\_ip\_failover\_script is not defined.

Fri Sep 9 23:08:03 2016 - [warning] shutdown\_script is not defined.

Fri Sep 9 23:08:03 2016 - [info] Got exit code 0 (Not master dead).

MySQL Replication Health is OK.

**这里第二次、第三次、第四次…..实验的时候一直在报错，耽误了差不多20多个小时，百度关键字前3页的网站基本都看了，也没能解决，后来翻墙去谷歌查官方文档才解决！原来数据库主从有记录，需要reset slave一下，因为报错信息一直给的主服务器有问题，就没关注从服务器！报错信息就不在这里写了！回头写在总结中！再更新几个常见的问题，希望大家能够避免！**

### 3、数据库宕机测试

#### a.启动MHA

**重新开一个窗口，用于监控日志，因为这个是打开前台的进程，运行的时候光标会卡住**

[root@rhel6-64-2 ~]# nohup masterha\_manager --conf=/etc/masterha/app1.cnf > /tmp/mha\_manager.log 2>&1&

**b.监控日志**

**打开监控日志的窗口，查看**

[root@rhel6-64-2 app1]# tail -f /etc/masterha/app1/manager.log

Fri Sep 9 23:23:52 2016 - [info] MHA::MasterMonitor version 0.53.

Fri Sep 9 23:23:53 2016 - [info] Dead Servers:

Fri Sep 9 23:23:53 2016 - [info] Alive Servers:

Fri Sep 9 23:23:53 2016 - [info] 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:23:53 2016 - [info] 172.28.7.204(172.28.7.204:3306)

Fri Sep 9 23:23:53 2016 - [info] 172.28.7.205(172.28.7.205:3306)

Fri Sep 9 23:23:53 2016 - [info] Alive Slaves:

Fri Sep 9 23:23:53 2016 - [info] 172.28.7.204(172.28.7.204:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:23:53 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:23:53 2016 - [info] Primary candidate for the new Master (candidate\_master is set)

Fri Sep 9 23:23:53 2016 - [info] 172.28.7.205(172.28.7.205:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:23:53 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:23:53 2016 - [info] Not candidate for the new Master (no\_master is set)

Fri Sep 9 23:23:53 2016 - [info] Current Alive Master: 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:23:53 2016 - [info] Checking slave configurations..

Fri Sep 9 23:23:53 2016 - [info] read\_only=1 is not set on slave 172.28.7.204(172.28.7.204:3306).

Fri Sep 9 23:23:53 2016 - [warning] relay\_log\_purge=0 is not set on slave 172.28.7.204(172.28.7.204:3306).

Fri Sep 9 23:23:53 2016 - [warning] relay\_log\_purge=0 is not set on slave 172.28.7.205(172.28.7.205:3306).

Fri Sep 9 23:23:53 2016 - [info] Checking replication filtering settings..

Fri Sep 9 23:23:53 2016 - [info] binlog\_do\_db= , binlog\_ignore\_db=

Fri Sep 9 23:23:53 2016 - [info] Replication filtering check ok.

Fri Sep 9 23:23:53 2016 - [info] Starting SSH connection tests..

Fri Sep 9 23:23:57 2016 - [info] All SSH connection tests passed successfully.

Fri Sep 9 23:23:57 2016 - [info] Checking MHA Node version..

Fri Sep 9 23:23:58 2016 - [info] Version check ok.

Fri Sep 9 23:23:58 2016 - [info] Checking SSH publickey authentication settings on the current master..

Fri Sep 9 23:23:58 2016 - [info] HealthCheck: SSH to 172.28.7.203 is reachable.

Fri Sep 9 23:23:59 2016 - [info] Master MHA Node version is 0.53.

Fri Sep 9 23:23:59 2016 - [info] Checking recovery script configurations on the current master..

Fri Sep 9 23:23:59 2016 - [info] Executing command: save\_binary\_logs --command=test --start\_pos=4 --binlog\_dir=/var/lib/mysql --output\_file=/var/tmp/save\_binary\_logs\_test --manager\_version=0.53 --start\_file=mysql-bin.000013

Fri Sep 9 23:23:59 2016 - [info] Connecting to root@172.28.7.203(172.28.7.203)..

Creating /var/tmp if not exists.. ok.

Checking output directory is accessible or not..

ok.

Binlog found at /var/lib/mysql, up to mysql-bin.000013

Fri Sep 9 23:24:00 2016 - [info] Master setting check done.

Fri Sep 9 23:24:00 2016 - [info] Checking SSH publickey authentication and checking recovery script configurations on all alive slave servers..

Fri Sep 9 23:24:00 2016 - [info] Executing command : apply\_diff\_relay\_logs --command=test --slave\_user=gongzi --slave\_host=172.28.7.204 --slave\_ip=172.28.7.204 --slave\_port=3306 --workdir=/var/tmp --target\_version=5.1.66-log --manager\_version=0.53 --relay\_log\_info=/var/lib/mysql/relay-log.info --relay\_dir=/var/lib/mysql/ --slave\_pass=xxx

Fri Sep 9 23:24:00 2016 - [info] Connecting to root@172.28.7.204(172.28.7.204:22)..

Checking slave recovery environment settings..

Opening /var/lib/mysql/relay-log.info ... ok.

Relay log found at /var/lib/mysql, up to mysql-relay-bin.000002

Temporary relay log file is /var/lib/mysql/mysql-relay-bin.000002

Testing mysql connection and privileges.. done.

Testing mysqlbinlog output.. done.

Cleaning up test file(s).. done.

Fri Sep 9 23:24:00 2016 - [info] Executing command : apply\_diff\_relay\_logs --command=test --slave\_user=gongzi --slave\_host=172.28.7.205 --slave\_ip=172.28.7.205 --slave\_port=3306 --workdir=/var/tmp --target\_version=5.1.66-log --manager\_version=0.53 --relay\_log\_info=/var/lib/mysql/relay-log.info --relay\_dir=/var/lib/mysql/ --slave\_pass=xxx

Fri Sep 9 23:24:00 2016 - [info] Connecting to root@172.28.7.205(172.28.7.205:22)..

Checking slave recovery environment settings..

Opening /var/lib/mysql/relay-log.info ... ok.

Relay log found at /var/lib/mysql, up to mysql-relay-bin.000002

Temporary relay log file is /var/lib/mysql/mysql-relay-bin.000002

Testing mysql connection and privileges.. done.

Testing mysqlbinlog output.. done.

Cleaning up test file(s).. done.

Fri Sep 9 23:24:01 2016 - [info] Slaves settings check done.

Fri Sep 9 23:24:01 2016 - [info]

172.28.7.203 (current master)

+--172.28.7.204

+--172.28.7.205

Fri Sep 9 23:24:01 2016 - [warning] master\_ip\_failover\_script is not defined.

Fri Sep 9 23:24:01 2016 - [warning] shutdown\_script is not defined.

Fri Sep 9 23:24:01 2016 - [info] Set master ping interval 3 seconds.

Fri Sep 9 23:24:01 2016 - [warning] secondary\_check\_script is not defined. It is highly recommended setting it to check master reachability from two or more routes.

Fri Sep 9 23:24:01 2016 - [info] Starting ping health check on 172.28.7.203(172.28.7.203:3306)..

Fri Sep 9 23:24:01 2016 - [info] Ping(SELECT) succeeded, waiting until MySQL doesn't respond..

正如黄底红字所示，一切准备就绪！就等着MYSQL无响应呢

#### c.主服务器宕机

手动暂停主数据库服务器

**[root@rhel6-64-3 ~]# service mysqld stop**

**Stopping mysqld:** [ OK ]

#### d.查看日志

Fri Sep 9 23:24:01 2016 - [warning] master\_ip\_failover\_script is not defined.

Fri Sep 9 23:24:01 2016 - [warning] shutdown\_script is not defined.

Fri Sep 9 23:24:01 2016 - [info] Set master ping interval 3 seconds.

Fri Sep 9 23:24:01 2016 - [warning] secondary\_check\_script is not defined. It is highly recommended setting it to check master reachability from two or more routes.

Fri Sep 9 23:24:01 2016 - [info] Starting ping health check on 172.28.7.203(172.28.7.203:3306)..

Fri Sep 9 23:24:01 2016 - [info] Ping(SELECT) succeeded, waiting until MySQL doesn't respond..

Fri Sep 9 23:37:37 2016 - [warning] Got error on MySQL select ping: 2006 (MySQL server has gone away)

Fri Sep 9 23:37:37 2016 - [info] Executing SSH check script: save\_binary\_logs --command=test --start\_pos=4 --binlog\_dir=/var/lib/mysql --output\_file=/var/tmp/save\_binary\_logs\_test --manager\_version=0.53 --binlog\_prefix=mysql-bin

Fri Sep 9 23:37:38 2016 - [info] HealthCheck: SSH to 172.28.7.203 is reachable.

Fri Sep 9 23:37:40 2016 - [warning] Got error on MySQL connect: 2013 (Lost connection to MySQL server at 'reading initial communication packet', system error: 111)

Fri Sep 9 23:37:40 2016 - [warning] Connection failed 1 time(s)..

Fri Sep 9 23:37:43 2016 - [warning] Got error on MySQL connect: 2013 (Lost connection to MySQL server at 'reading initial communication packet', system error: 111)

Fri Sep 9 23:37:43 2016 - [warning] Connection failed 2 time(s)..

Fri Sep 9 23:37:46 2016 - [warning] Got error on MySQL connect: 2013 (Lost connection to MySQL server at 'reading initial communication packet', system error: 111)

Fri Sep 9 23:37:46 2016 - [warning] Connection failed 3 time(s)..

Fri Sep 9 23:37:46 2016 - [warning] Master is not reachable from health checker!

Fri Sep 9 23:37:46 2016 - [warning] Master 172.28.7.203(172.28.7.203:3306) is not reachable!

Fri Sep 9 23:37:46 2016 - [warning] SSH is reachable.

Fri Sep 9 23:37:46 2016 - [info] Connecting to a master server failed. Reading configuration file /etc/masterha\_default.cnf and /etc/masterha/app1.cnf again, and trying to connect to all servers to check server status..

Fri Sep 9 23:37:46 2016 - [warning] Global configuration file /etc/masterha\_default.cnf not found. Skipping.

Fri Sep 9 23:37:46 2016 - [info] Reading application default configurations from /etc/masterha/app1.cnf..

Fri Sep 9 23:37:46 2016 - [info] Reading server configurations from /etc/masterha/app1.cnf..

Fri Sep 9 23:37:47 2016 - [info] Dead Servers:

Fri Sep 9 23:37:47 2016 - [info] 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:47 2016 - [info] Alive Servers:

Fri Sep 9 23:37:47 2016 - [info] 172.28.7.204(172.28.7.204:3306)

Fri Sep 9 23:37:47 2016 - [info] 172.28.7.205(172.28.7.205:3306)

Fri Sep 9 23:37:47 2016 - [info] Alive Slaves:

Fri Sep 9 23:37:47 2016 - [info] 172.28.7.204(172.28.7.204:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:37:47 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:47 2016 - [info] Primary candidate for the new Master (candidate\_master is set)

Fri Sep 9 23:37:47 2016 - [info] 172.28.7.205(172.28.7.205:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:37:47 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:47 2016 - [info] Not candidate for the new Master (no\_master is set)

Fri Sep 9 23:37:47 2016 - [info] Checking slave configurations..

Fri Sep 9 23:37:47 2016 - [info] read\_only=1 is not set on slave 172.28.7.204(172.28.7.204:3306).

Fri Sep 9 23:37:47 2016 - [warning] relay\_log\_purge=0 is not set on slave 172.28.7.204(172.28.7.204:3306).

Fri Sep 9 23:37:47 2016 - [warning] relay\_log\_purge=0 is not set on slave 172.28.7.205(172.28.7.205:3306).

Fri Sep 9 23:37:47 2016 - [info] Checking replication filtering settings..

Fri Sep 9 23:37:47 2016 - [info] Replication filtering check ok.

Fri Sep 9 23:37:47 2016 - [info] Master is down!

Fri Sep 9 23:37:47 2016 - [info] Terminating monitoring script.

Fri Sep 9 23:37:47 2016 - [info] Got exit code 20 (Master dead).

Fri Sep 9 23:37:47 2016 - [info] MHA::MasterFailover version 0.53.

Fri Sep 9 23:37:47 2016 - [info] Starting master failover.

Fri Sep 9 23:37:47 2016 - [info]

Fri Sep 9 23:37:47 2016 - [info] \* Phase 1: Configuration Check Phase..

Fri Sep 9 23:37:47 2016 - [info]

Fri Sep 9 23:37:48 2016 - [info] Dead Servers:

Fri Sep 9 23:37:48 2016 - [info] 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:48 2016 - [info] Checking master reachability via mysql(double check)..

Fri Sep 9 23:37:48 2016 - [info] ok.

Fri Sep 9 23:37:48 2016 - [info] Alive Servers:

Fri Sep 9 23:37:48 2016 - [info] 172.28.7.204(172.28.7.204:3306)

Fri Sep 9 23:37:48 2016 - [info] 172.28.7.205(172.28.7.205:3306)

Fri Sep 9 23:37:48 2016 - [info] Alive Slaves:

Fri Sep 9 23:37:48 2016 - [info] 172.28.7.204(172.28.7.204:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:37:48 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:48 2016 - [info] Primary candidate for the new Master (candidate\_master is set)

Fri Sep 9 23:37:48 2016 - [info] 172.28.7.205(172.28.7.205:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:37:48 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:48 2016 - [info] Not candidate for the new Master (no\_master is set)

Fri Sep 9 23:37:48 2016 - [info] \*\* Phase 1: Configuration Check Phase completed.

Fri Sep 9 23:37:48 2016 - [info]

Fri Sep 9 23:37:48 2016 - [info] \* Phase 2: Dead Master Shutdown Phase..

Fri Sep 9 23:37:48 2016 - [info]

Fri Sep 9 23:37:49 2016 - [info] Forcing shutdown so that applications never connect to the current master..

Fri Sep 9 23:37:49 2016 - [warning] master\_ip\_failover\_script is not set. Skipping invalidating dead master ip address.

Fri Sep 9 23:37:49 2016 - [warning] shutdown\_script is not set. Skipping explicit shutting down of the dead master.

Fri Sep 9 23:37:50 2016 - [info] \* Phase 2: Dead Master Shutdown Phase completed.

Fri Sep 9 23:37:50 2016 - [info]

Fri Sep 9 23:37:50 2016 - [info] \* Phase 3: Master Recovery Phase..

Fri Sep 9 23:37:50 2016 - [info]

Fri Sep 9 23:37:50 2016 - [info] \* Phase 3.1: Getting Latest Slaves Phase..

Fri Sep 9 23:37:50 2016 - [info]

Fri Sep 9 23:37:50 2016 - [info] The latest binary log file/position on all slaves is mysql-bin.000013:106

Fri Sep 9 23:37:50 2016 - [info] Latest slaves (Slaves that received relay log files to the latest):

Fri Sep 9 23:37:50 2016 - [info] 172.28.7.204(172.28.7.204:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:37:50 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:50 2016 - [info] Primary candidate for the new Master (candidate\_master is set)

Fri Sep 9 23:37:50 2016 - [info] 172.28.7.205(172.28.7.205:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:37:50 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:50 2016 - [info] Not candidate for the new Master (no\_master is set)

Fri Sep 9 23:37:50 2016 - [info] The oldest binary log file/position on all slaves is mysql-bin.000013:106

Fri Sep 9 23:37:50 2016 - [info] Oldest slaves:

Fri Sep 9 23:37:50 2016 - [info] 172.28.7.204(172.28.7.204:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:37:50 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:50 2016 - [info] Primary candidate for the new Master (candidate\_master is set)

Fri Sep 9 23:37:50 2016 - [info] 172.28.7.205(172.28.7.205:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:37:50 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:50 2016 - [info] Not candidate for the new Master (no\_master is set)

Fri Sep 9 23:37:50 2016 - [info]

Fri Sep 9 23:37:50 2016 - [info] \* Phase 3.2: Saving Dead Master's Binlog Phase..

Fri Sep 9 23:37:50 2016 - [info]

Fri Sep 9 23:37:50 2016 - [info] Fetching dead master's binary logs..

Fri Sep 9 23:37:50 2016 - [info] Executing command on the dead master 172.28.7.203(172.28.7.203:3306): save\_binary\_logs --command=save --start\_file=mysql-bin.000013 --start\_pos=106 --binlog\_dir=/var/lib/mysql --output\_file=/var/tmp/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog --handle\_raw\_binlog=1 --disable\_log\_bin=0 --manager\_version=0.53

Creating /var/tmp if not exists.. ok.

Concat binary/relay logs from mysql-bin.000013 pos 106 to mysql-bin.000013 EOF into /var/tmp/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog ..

Dumping binlog format description event, from position 0 to 106.. ok.

Dumping effective binlog data from /var/lib/mysql/mysql-bin.000013 position 106 to tail(125).. ok.

Concat succeeded.

Fri Sep 9 23:37:52 2016 - [info] scp from root@172.28.7.203:/var/tmp/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog to local:/etc/masterha/app1/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog succeeded.

Fri Sep 9 23:37:52 2016 - [info] HealthCheck: SSH to 172.28.7.204 is reachable.

Fri Sep 9 23:37:53 2016 - [info] HealthCheck: SSH to 172.28.7.205 is reachable.

Fri Sep 9 23:37:54 2016 - [info]

Fri Sep 9 23:37:54 2016 - [info] \* Phase 3.3: Determining New Master Phase..

Fri Sep 9 23:37:54 2016 - [info]

Fri Sep 9 23:37:54 2016 - [info] Finding the latest slave that has all relay logs for recovering other slaves..

Fri Sep 9 23:37:54 2016 - [info] All slaves received relay logs to the same position. No need to resync each other.

Fri Sep 9 23:37:54 2016 - [info] Searching new master from slaves..

Fri Sep 9 23:37:54 2016 - [info] Candidate masters from the configuration file:

Fri Sep 9 23:37:54 2016 - [info] 172.28.7.204(172.28.7.204:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:37:54 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:54 2016 - [info] Primary candidate for the new Master (candidate\_master is set)

Fri Sep 9 23:37:54 2016 - [info] Non-candidate masters:

Fri Sep 9 23:37:54 2016 - [info] 172.28.7.205(172.28.7.205:3306) Version=5.1.66-log (oldest major version between slaves) log-bin:enabled

Fri Sep 9 23:37:54 2016 - [info] Replicating from 172.28.7.203(172.28.7.203:3306)

Fri Sep 9 23:37:54 2016 - [info] Not candidate for the new Master (no\_master is set)

Fri Sep 9 23:37:54 2016 - [info] Searching from candidate\_master slaves which have received the latest relay log events..

Fri Sep 9 23:37:54 2016 - [info] New master is 172.28.7.204(172.28.7.204:3306)

Fri Sep 9 23:37:54 2016 - [info] Starting master failover..

Fri Sep 9 23:37:54 2016 - [info]

From:

172.28.7.203 (current master)

+--172.28.7.204

+--172.28.7.205

To:

172.28.7.204 (new master)

+--172.28.7.205

Fri Sep 9 23:37:54 2016 - [info]

Fri Sep 9 23:37:54 2016 - [info] \* Phase 3.3: New Master Diff Log Generation Phase..

Fri Sep 9 23:37:54 2016 - [info]

Fri Sep 9 23:37:54 2016 - [info] This server has all relay logs. No need to generate diff files from the latest slave.

Fri Sep 9 23:37:54 2016 - [info] Sending binlog..

Fri Sep 9 23:37:55 2016 - [info] scp from local:/etc/masterha/app1/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog to root@172.28.7.204:/var/tmp/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog succeeded.

Fri Sep 9 23:37:55 2016 - [info]

Fri Sep 9 23:37:55 2016 - [info] \* Phase 3.4: Master Log Apply Phase..

Fri Sep 9 23:37:55 2016 - [info]

Fri Sep 9 23:37:55 2016 - [info] \*NOTICE: If any error happens from this phase, manual recovery is needed.

Fri Sep 9 23:37:55 2016 - [info] Starting recovery on 172.28.7.204(172.28.7.204:3306)..

Fri Sep 9 23:37:55 2016 - [info] Generating diffs succeeded.

Fri Sep 9 23:37:55 2016 - [info] Waiting until all relay logs are applied.

Fri Sep 9 23:37:55 2016 - [info] done.

Fri Sep 9 23:37:55 2016 - [info] Getting slave status..

Fri Sep 9 23:37:55 2016 - [info] This slave(172.28.7.204)'s Exec\_Master\_Log\_Pos equals to Read\_Master\_Log\_Pos(mysql-bin.000013:106). No need to recover from Exec\_Master\_Log\_Pos.

Fri Sep 9 23:37:55 2016 - [info] Connecting to the target slave host 172.28.7.204, running recover script..

Fri Sep 9 23:37:55 2016 - [info] Executing command: apply\_diff\_relay\_logs --command=apply --slave\_user=gongzi --slave\_host=172.28.7.204 --slave\_ip=172.28.7.204 --slave\_port=3306 --apply\_files=/var/tmp/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog --workdir=/var/tmp --target\_version=5.1.66-log --timestamp=20160909233747 --handle\_raw\_binlog=1 --disable\_log\_bin=0 --manager\_version=0.53 --slave\_pass=xxx

Fri Sep 9 23:37:55 2016 - [info]

Applying differential binary/relay log files /var/tmp/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog on 172.28.7.204:3306. This may take long time...

Applying log files succeeded.

Fri Sep 9 23:37:55 2016 - [info] All relay logs were successfully applied.

Fri Sep 9 23:37:55 2016 - [info] Getting new master's binlog name and position..

Fri Sep 9 23:37:55 2016 - [info] binlog.000007:106

Fri Sep 9 23:37:55 2016 - [info] All other slaves should start replication from here. Statement should be: CHANGE MASTER TO MASTER\_HOST='172.28.7.204', MASTER\_PORT=3306, MASTER\_LOG\_FILE='binlog.000007', MASTER\_LOG\_POS=106, MASTER\_USER='qianmen', MASTER\_PASSWORD='xxx';

Fri Sep 9 23:37:55 2016 - [warning] master\_ip\_failover\_script is not set. Skipping taking over new master ip address.

Fri Sep 9 23:37:55 2016 - [info] \*\* Finished master recovery successfully.

Fri Sep 9 23:37:55 2016 - [info] \* Phase 3: Master Recovery Phase completed.

Fri Sep 9 23:37:55 2016 - [info]

Fri Sep 9 23:37:55 2016 - [info] \* Phase 4: Slaves Recovery Phase..

Fri Sep 9 23:37:55 2016 - [info]

Fri Sep 9 23:37:55 2016 - [info] \* Phase 4.1: Starting Parallel Slave Diff Log Generation Phase..

Fri Sep 9 23:37:55 2016 - [info]

Fri Sep 9 23:37:56 2016 - [info] -- Slave diff file generation on host 172.28.7.205(172.28.7.205:3306) started, pid: 50129. Check tmp log /etc/masterha/app1/172.28.7.205\_3306\_20160909233747.log if it takes time..

Fri Sep 9 23:37:57 2016 - [info]

Fri Sep 9 23:37:57 2016 - [info] Log messages from 172.28.7.205 ...

Fri Sep 9 23:37:57 2016 - [info]

Fri Sep 9 23:37:56 2016 - [info] This server has all relay logs. No need to generate diff files from the latest slave.

Fri Sep 9 23:37:57 2016 - [info] End of log messages from 172.28.7.205.

Fri Sep 9 23:37:57 2016 - [info] -- 172.28.7.205(172.28.7.205:3306) has the latest relay log events.

Fri Sep 9 23:37:57 2016 - [info] Generating relay diff files from the latest slave succeeded.

Fri Sep 9 23:37:57 2016 - [info]

Fri Sep 9 23:37:57 2016 - [info] \* Phase 4.2: Starting Parallel Slave Log Apply Phase..

Fri Sep 9 23:37:57 2016 - [info]

Fri Sep 9 23:37:57 2016 - [info] -- Slave recovery on host 172.28.7.205(172.28.7.205:3306) started, pid: 50131. Check tmp log /etc/masterha/app1/172.28.7.205\_3306\_20160909233747.log if it takes time..

Fri Sep 9 23:37:59 2016 - [info]

Fri Sep 9 23:37:59 2016 - [info] Log messages from 172.28.7.205 ...

Fri Sep 9 23:37:59 2016 - [info]

Fri Sep 9 23:37:57 2016 - [info] Sending binlog..

Fri Sep 9 23:37:58 2016 - [info] scp from local:/etc/masterha/app1/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog to root@172.28.7.205:/var/tmp/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog succeeded.

Fri Sep 9 23:37:58 2016 - [info] Starting recovery on 172.28.7.205(172.28.7.205:3306)..

Fri Sep 9 23:37:58 2016 - [info] Generating diffs succeeded.

Fri Sep 9 23:37:58 2016 - [info] Waiting until all relay logs are applied.

Fri Sep 9 23:37:58 2016 - [info] done.

Fri Sep 9 23:37:58 2016 - [info] Getting slave status..

Fri Sep 9 23:37:58 2016 - [info] This slave(172.28.7.205)'s Exec\_Master\_Log\_Pos equals to Read\_Master\_Log\_Pos(mysql-bin.000013:106). No need to recover from Exec\_Master\_Log\_Pos.

Fri Sep 9 23:37:58 2016 - [info] Connecting to the target slave host 172.28.7.205, running recover script..

Fri Sep 9 23:37:58 2016 - [info] Executing command: apply\_diff\_relay\_logs --command=apply --slave\_user=gongzi --slave\_host=172.28.7.205 --slave\_ip=172.28.7.205 --slave\_port=3306 --apply\_files=/var/tmp/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog --workdir=/var/tmp --target\_version=5.1.66-log --timestamp=20160909233747 --handle\_raw\_binlog=1 --disable\_log\_bin=0 --manager\_version=0.53 --slave\_pass=xxx

Fri Sep 9 23:37:58 2016 - [info]

Applying differential binary/relay log files /var/tmp/saved\_master\_binlog\_from\_172.28.7.203\_3306\_20160909233747.binlog on 172.28.7.205:3306. This may take long time...

Applying log files succeeded.

Fri Sep 9 23:37:58 2016 - [info] All relay logs were successfully applied.

Fri Sep 9 23:37:58 2016 - [info] Resetting slave 172.28.7.205(172.28.7.205:3306) and starting replication from the new master 172.28.7.204(172.28.7.204:3306)..

Fri Sep 9 23:37:58 2016 - [info] Executed CHANGE MASTER.

Fri Sep 9 23:37:59 2016 - [info] Slave started.

Fri Sep 9 23:37:59 2016 - [info] End of log messages from 172.28.7.205.

Fri Sep 9 23:37:59 2016 - [info] -- Slave recovery on host 172.28.7.205(172.28.7.205:3306) succeeded.

Fri Sep 9 23:37:59 2016 - [info] All new slave servers recovered successfully.

Fri Sep 9 23:37:59 2016 - [info]

Fri Sep 9 23:37:59 2016 - [info] \* Phase 5: New master cleanup phease..

Fri Sep 9 23:37:59 2016 - [info]

Fri Sep 9 23:37:59 2016 - [info] Resetting slave info on the new master..

Fri Sep 9 23:37:59 2016 - [info] 172.28.7.204: Resetting slave info succeeded.

Fri Sep 9 23:37:59 2016 - [info] Master failover to 172.28.7.204(172.28.7.204:3306) completed successfully.

Fri Sep 9 23:37:59 2016 - [info]

----- Failover Report -----

app1: MySQL Master failover 172.28.7.203 to 172.28.7.204 succeeded

Master 172.28.7.203 is down!

Check MHA Manager logs at rhel6-64-2:/etc/masterha/app1/manager.log for details.

Started automated(non-interactive) failover.

The latest slave 172.28.7.204(172.28.7.204:3306) has all relay logs for recovery.

Selected 172.28.7.204 as a new master.

172.28.7.204: OK: Applying all logs succeeded.

172.28.7.205: This host has the latest relay log events.

Generating relay diff files from the latest slave succeeded.

172.28.7.205: OK: Applying all logs succeeded. Slave started, replicating from 172.28.7.204.

172.28.7.204: Resetting slave info succeeded.

**Master failover to 172.28.7.204(172.28.7.204:3306) completed successfully.**

**再登录slave2服务器，看slave 的状态**

**[root@rhel6-64-5 ~]#** mysql

**mysql**> show slave status\G

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 1. row \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**Slave\_IO\_State: Waiting for master to send event**

Master\_Host: 172.28.7.204

**Master\_User: qianmen**

**Master\_Port: 3306**

**Connect\_Retry: 60**

**Master\_Log\_File: binlog.000007**

**Read\_Master\_Log\_Pos: 106**

**Relay\_Log\_File: mysql-relay-bin.000002**

**Relay\_Log\_Pos: 248**

**Relay\_Master\_Log\_File: binlog.000007**

Slave\_IO\_Running: Yes

Slave\_SQL\_Running: Yes

**Replicate\_Do\_DB:**

**Replicate\_Ignore\_DB:**

**Replicate\_Do\_Table:**

**Replicate\_Ignore\_Table:**

**Replicate\_Wild\_Do\_Table:**

**Replicate\_Wild\_Ignore\_Table:**

**Last\_Errno: 0**

**Last\_Error:**

**Skip\_Counter: 0**

**Exec\_Master\_Log\_Pos: 106**

**Relay\_Log\_Space: 403**

**Until\_Condition: None**

**Until\_Log\_File:**

**Until\_Log\_Pos: 0**

**Master\_SSL\_Allowed: No**

**Master\_SSL\_CA\_File: 60**

**Master\_SSL\_CA\_Path: 0**

**Master\_SSL\_Cert:**

**Master\_SSL\_Cipher:**

**Master\_SSL\_Key:**

**Seconds\_Behind\_Master: 0**

**Master\_SSL\_Verify\_Server\_Cert: No**

**Last\_IO\_Errno: 0**

**Last\_IO\_Error:**

**Last\_SQL\_Errno: 0**

**Last\_SQL\_Error:**

**1 row in set (0.00 sec)**

测试成功，如黄底红字标示所示，原203主机MySQL连接失败，204主机当选新的master，205主机记录最近的日志，大功告成，打完收工

## 六、总结

### mha日常维护命令

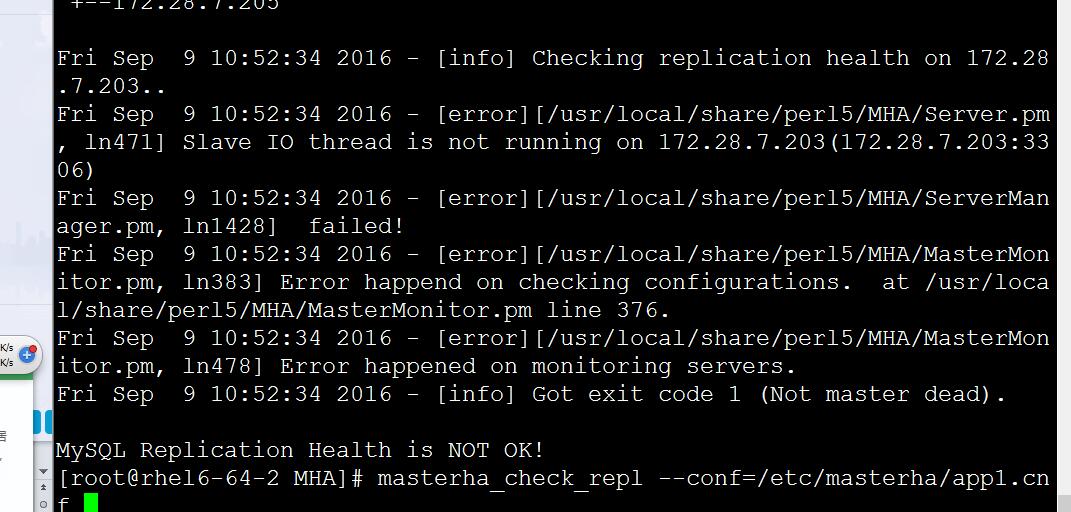
1.查看ssh登陆是否成功  
masterha\_check\_ssh --conf=/etc/masterha/app1.cnf  
2.查看复制是否建立好  
masterha\_check\_repl --conf=/etc/masterha/app1.cnf  
3.启动mha  
nohup masterha\_manager --conf=/etc/masterha/app1.cnf > /tmp/mha\_manager.log < /dev/null 2>&1 &   
当有slave节点宕掉的情况是启动不了的，加上--ignore\_fail\_on\_start即使有节点宕掉也能启动mha  
nohup masterha\_manager --conf=/etc/masterha/app1.cnf --ignore\_fail\_on\_start > /tmp/mha\_manager.log < /dev/null 2>&1 &   
4.检查启动的状态  
masterha\_check\_status --conf=/etc/masterha/app1.cnf  
5.停止mha  
masterha\_stop --conf=/etc/masterha/app1.cnf  
6.failover后下次重启  
每次failover切换后会在管理目录生成文件app1.failover.complete ，下次在切换的时候会发现有这个文件导致切换不成功，需要手动清理掉。  
rm -rf /masterha/app1/app1.failover.complete  
也可以加上参数--ignore\_last\_failover  
7.手工failover  
手工failover场景，master死掉，但是masterha\_manager没有开启，可以通过手工failover：  
masterha\_master\_switch --conf=/etc/masterha/app1.cnf --dead\_master\_host=10.50.2.10 --master\_state=dead --new\_master\_host=10.50.2.12 --ignore\_last\_failover  
8.masterha\_manager是一种监视和故障转移的程序。另一方面,masterha\_master\_switch程序不监控主库。 masterha\_master\_switch可以用于主库故障转移,也可用于在线总开关。  
9.手动在线切换  
masterha\_master\_switch --conf=/etc/app1.cnf --master\_state=alive --new\_master\_host=192.168.119.74 --orig\_master\_is\_new\_slave  
或者  
masterha\_master\_switch --conf=/etc/app1.cnf --master\_state=alive --new\_master\_host=192.168.119.74 --orig\_master\_is\_new\_slave --running\_updates\_limit=10000  
--orig\_master\_is\_new\_slave切换时加上此参数是将原master变为slave节点，如果不加此参数，原来的master将不启动  
--running\_updates\_limit=10000 切换时候选master如果有延迟的话，mha切换不能成功，加上此参数表示延迟在此时间范围内都可切换（单位为s），但是切换的时间长短是由recover时relay日志的大小决定  
手动在线切换mha，切换时需要将在运行的mha停掉后才能切换。  
在备库先执行DDL，一般先stop slave，一般不记录mysql日志，可以通过set SQL\_LOG\_BIN = 0实现。然后进行一次主备切换操作，再在原来的主库上执行DDL。这种方法适用于增减索引，如果是增加字段就需要额外注意。  
可以通过如下命令停止mha  
masterha\_stop --conf=/etc/app1.cnf

### 遇到的问题

**1. yum search perl-Log-Dispatch 找不到**

**解决：yum -y install perl-Log\***

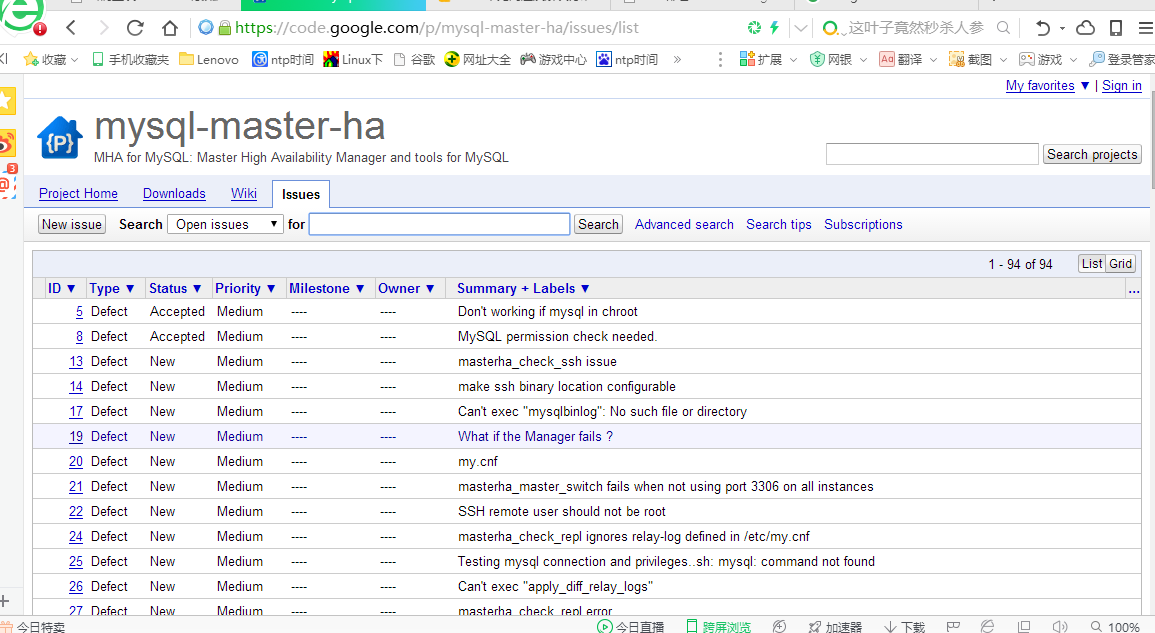
**2. yum search parallel 找不到**

**解决：网上下载了Log-Dispatchouli-master.zip 安装后再yum安装parallel**3.  


**解决： 因为172.28.7.203/204/205曾设置过主从，master为因为172.28.7.203。**

**在slave1/2上show slave status一直有信息。 需要reset slave;**

**最后如果有问题，还得访问官网！https://code.google.com/p/mysql-master-ha/issues/list**



**当然了，在天朝，你也需要翻墙！**

4

安装epel失败！

Error: Cannot retrieve repository metadata (repomd.xml) for repository: epel. Please verify its path and try again

I tried installing EPEL on a fresh install of RHEL6, and after adding the repo, yum fails with the above error. I have RHEL6.1 (Santiago) and get the above error.

This happens because the RHEL/CentOS installation doesn’t trust the HTTPS certificate used by mirrors.fedoraproject.org, that is issued by “GeoTrust SSL CA“.

In my case the package ca-certificates was not installed and the/etc/pki/tls/certs/ folder didn’t contain any ca-bundle.crt or ca-bundle.trust.crt !

Solution: yum install ca-certificates

(I had to temporarily rpm –erase epel-release first, to get yum working again)

I once got the same error message eventhout ca-certificates was installed and up to date. Then it was a firewall blocking https (port 443) traffic.

I worked around that by changing from **https to http** in/etc/yum.repos.d/epel.repo

简单点说 就是https是443端口，你并没有把该网站的CA证书添加进入，所以要改成80端口，虽然不那么安全！