一、Windows环境下运行 MongoDB 服务

1.1 MongoDB下载地址

> https://www.mongodb.com/try/download/community

1.2 安装后的配置

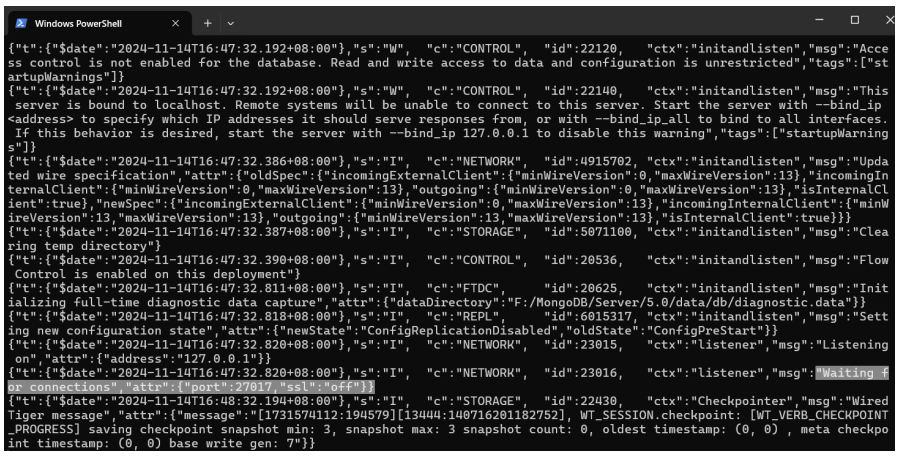
在你data的目录下，创建一个db文件夹； 类似于：‘F:\MongoDB\Server\5.0\data\db’

因为启动 MongoDB 服务之前必须创建数据库文件的存放文件夹，否则命令不会自动创建，而且不能启动成功。

启动cmd，进入安装 MongoDB 的 db 文件，输入命令，来启动MongoDB 服务：

```
mongod --dbpath F:\MongoDB\Server\5.0\data\db
```

报"Waiting for connections","attr":{"port":27017,"ssl":"off"} 表示数据库已经启动。如下图所示。



1.3 如何结束服务

一般是按两次的‘Ctrl + C’，就结束了该次进程：

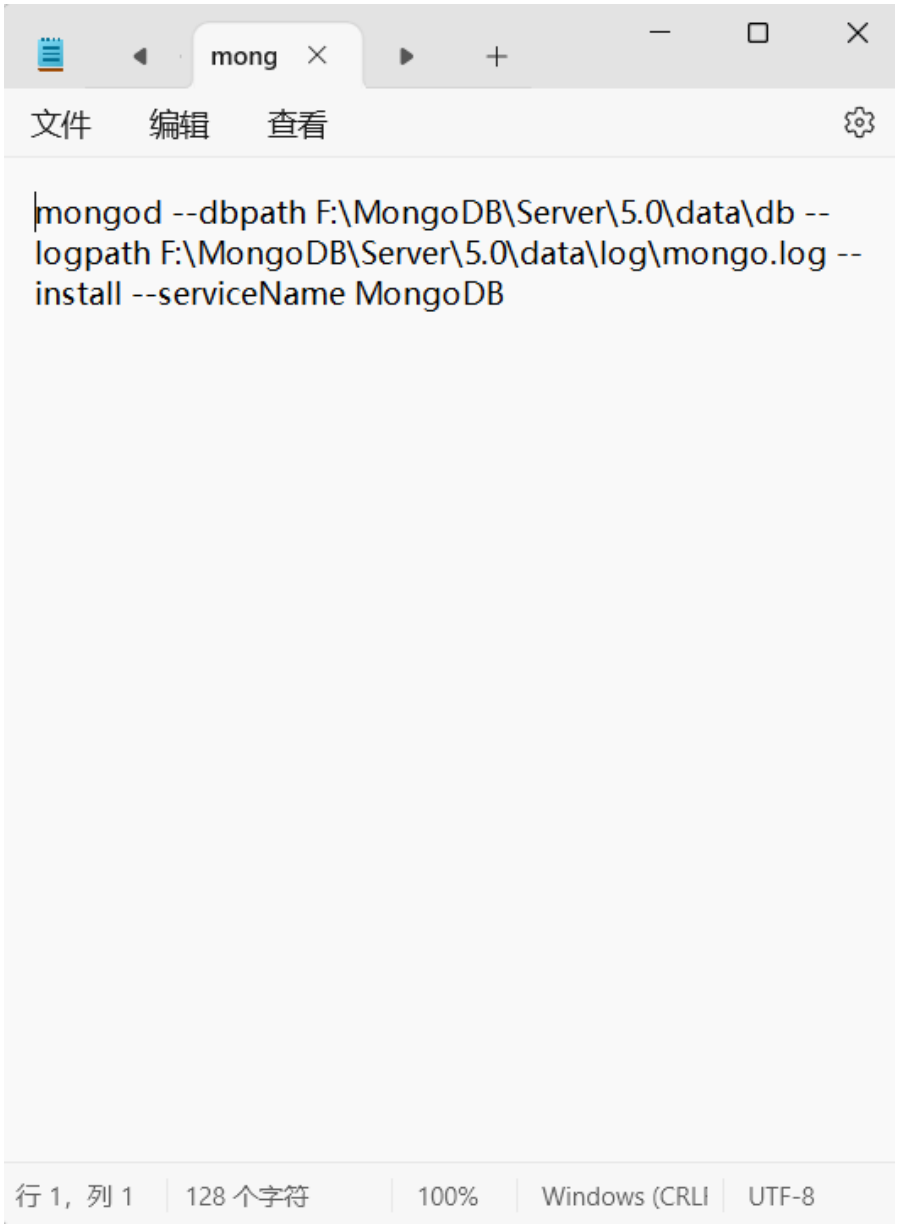
1.4 配置本地 Windows MongoGB 服务

设置为开机自启动，可直接手动启动关闭，可通过命令行net start MongoDB启动。

1） 在 data 文件下创建新文件夹log；（用来存放日志文件）；

2） 在 MongoGB 中新建配置文件 mongo.config；(与 bin 目录同级)

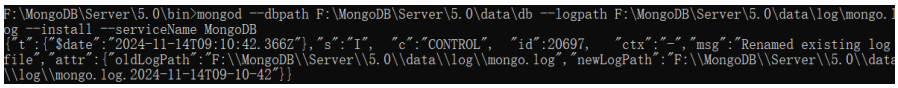
3） 用记事本打开 mongo.config 文件，并输入下面两个命令，然后保存；



(注意：以自己的实际安装的文件地址为准)

4） 用管理员身份打开 cmd，然后找到 bin 文件地址为："F:\MongoDB\Server\5.0\bin"，并输入代码为：

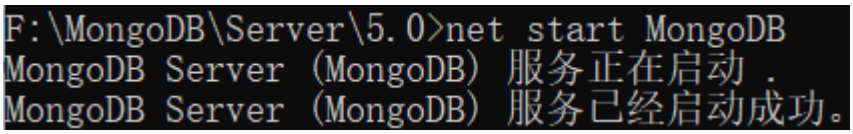
```
mongod --dbpath F:\MongoDB\Server\5.0\data\db --logpath
F:\MongoDB\Server\5.0\data\log\mongo.log --install --serviceName
MongoDB
```



1.5、在cmd 管理员中启动和关闭 MongoDB 服务

其一、启动 MongoDB 命令为：

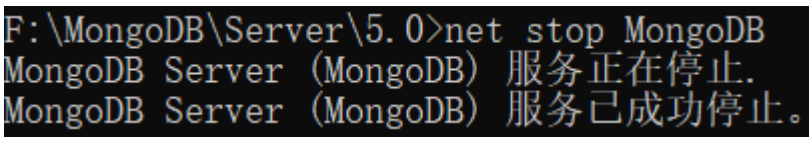
```
net start MongoDB
```



http://localhost:27017/

其三、关闭 MongoDB 命令为：

```
net stop MongoDB
```



二、Linux环境下分布式部署 MongoDB

1.1下载与环境变量的配置

1.2.1 到MongoDB官网下载(3台服务器执行相同操作)

```
https://fastdl.mongodb.org/linux/mongodb-linux-x86_64-ubuntu1804-6.0.19.tgz
```

1.2.2 解压到/home/zzs并创建软链接(3台服务器执行相同操作)

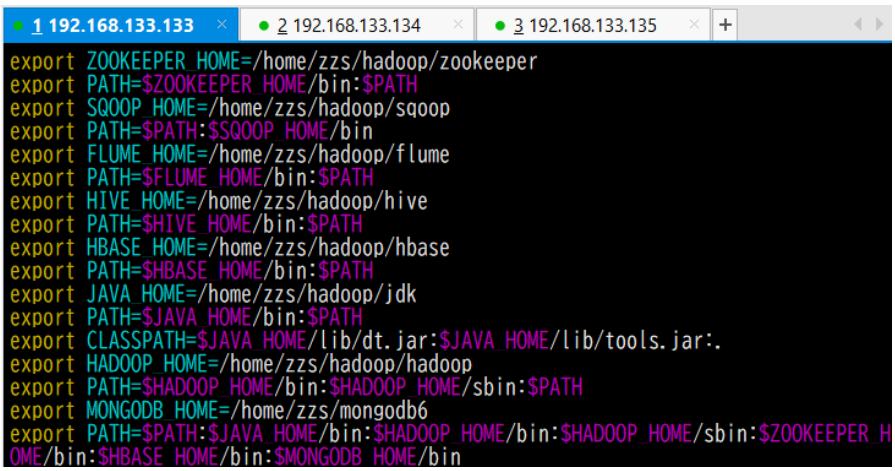
```
cd /home/zzs
tar -zxvf mongodb-linux-x86_64-ubuntu1804-6.0.19.tgz
ln -s mongodb-linux-x86_64-ubuntu1804-6.0.19 mongodb6
```

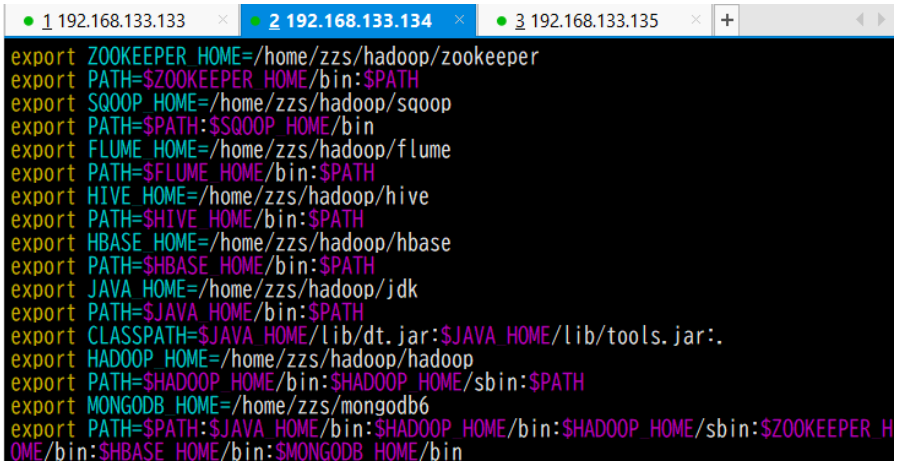
1.2.3配置环境变量(3台服务器执行相同操作)

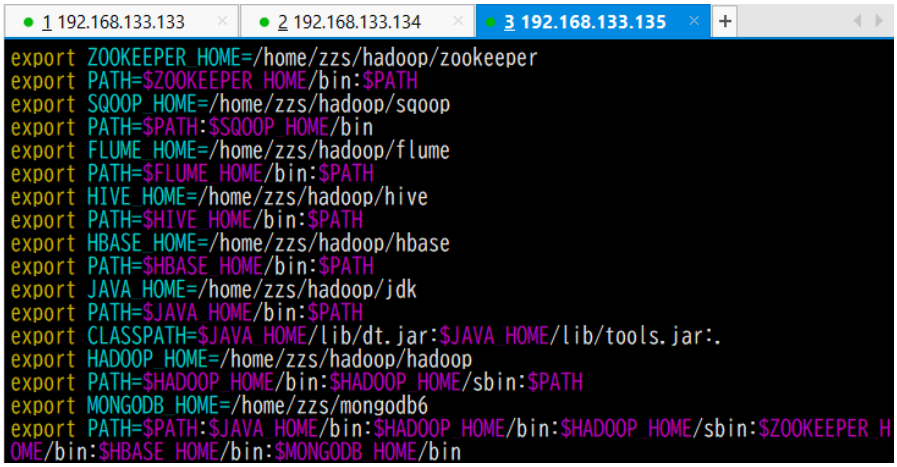
```
sudo vi ~/.bashrc
```

```
export MONGODB_HOME=/home/zzs/mongodb6
export
PATH=$PATH:$JAVA_HOME/bin:$HADOOP_HOME/bin:$HADOOP_HOME/sbin:$ZOOKEEPER_HOME/bin:$HBASE_HOME/bin:$MONGODB_HOME/bin
```

```
source ~/.bashrc
```







1.2.4创建路由、配置、分片等的相关目录与文件(3台服务器执行相同操作)

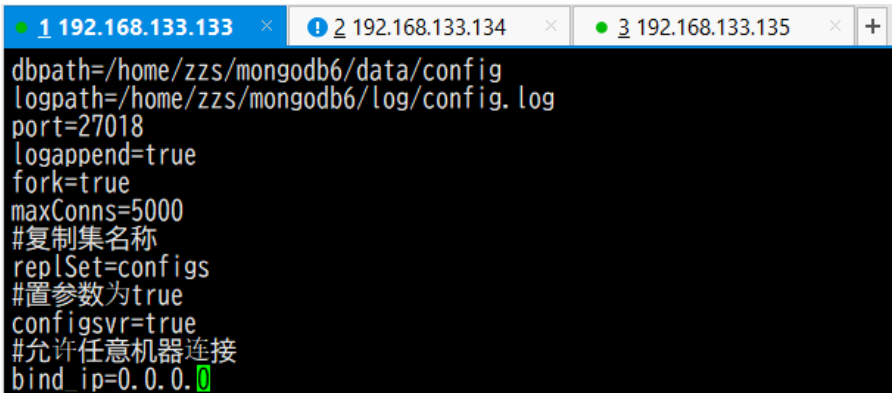
```
mkdir -p /home/zzs/mongodb6/conf
mkdir -p /home/zzs/mongodb6/log
mkdir -p /home/zzs/mongodb6/data/config
mkdir -p /home/zzs/mongodb6/data/shard1
mkdir -p /home/zzs/mongodb6/data/shard2
mkdir -p /home/zzs/mongodb6/data/shard3
touch /home/zzs/mongodb6/log/config.log
touch /home/zzs/mongodb6/log/mongos.log
touch /home/zzs/mongodb6/log/shard1.log
touch /home/zzs/mongodb6/log/shard2.log
touch /home/zzs/mongodb6/log/shard3.log
touch /home/zzs/mongodb6/conf/config.conf
```

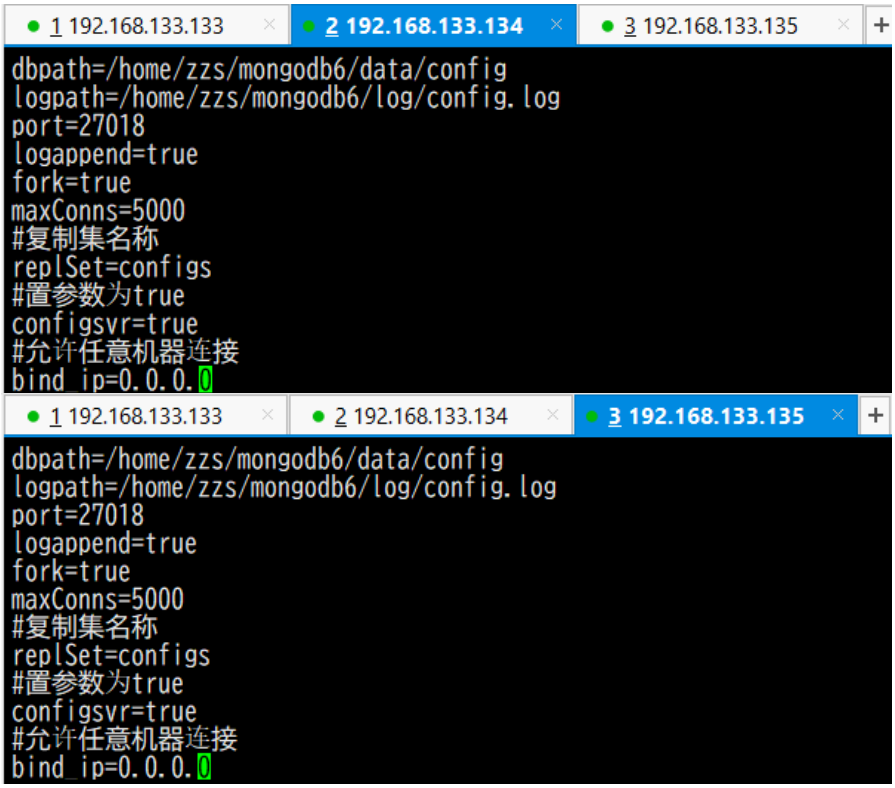
1.2.5配置服务器部署(3台服务器执行相同操作)

```
vi /home/zzs/mongodb6/conf/config.conf
```

配置/home/zzs/mongodb6/conf/config.conf如下:

```
dbpath=/home/zzs/mongodb6/data/config
logpath=/home/zzs/mongodb6/log/config.log
port=27018
logappend=true
fork=true
maxConns=5000
#复制集名称
replSet=configs
#置参数为true
configsvr=true
#允许任意机器连接
bind_ip=0.0.0.0
```

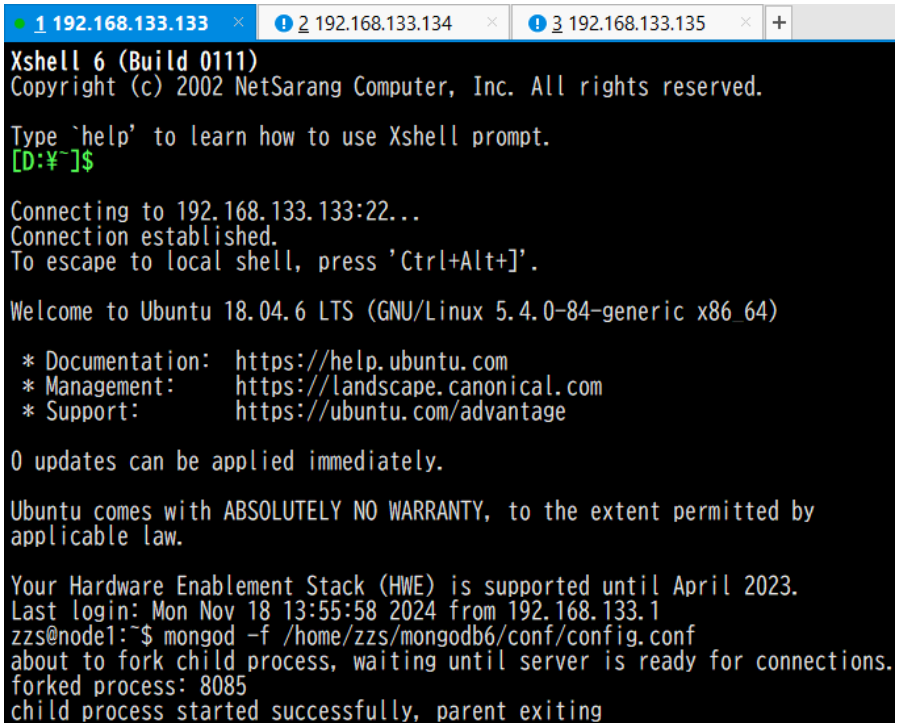


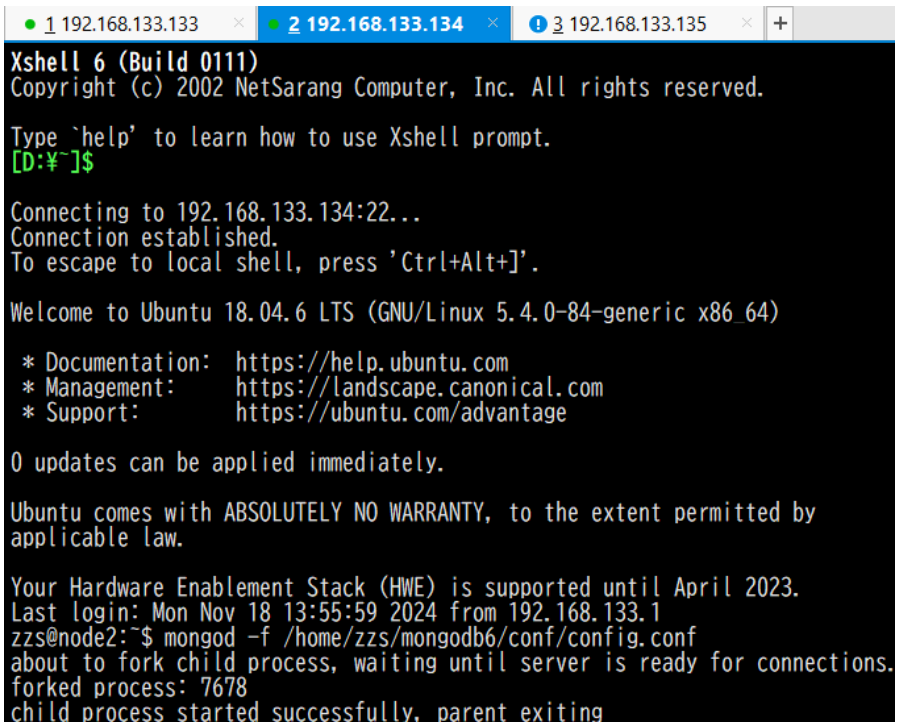


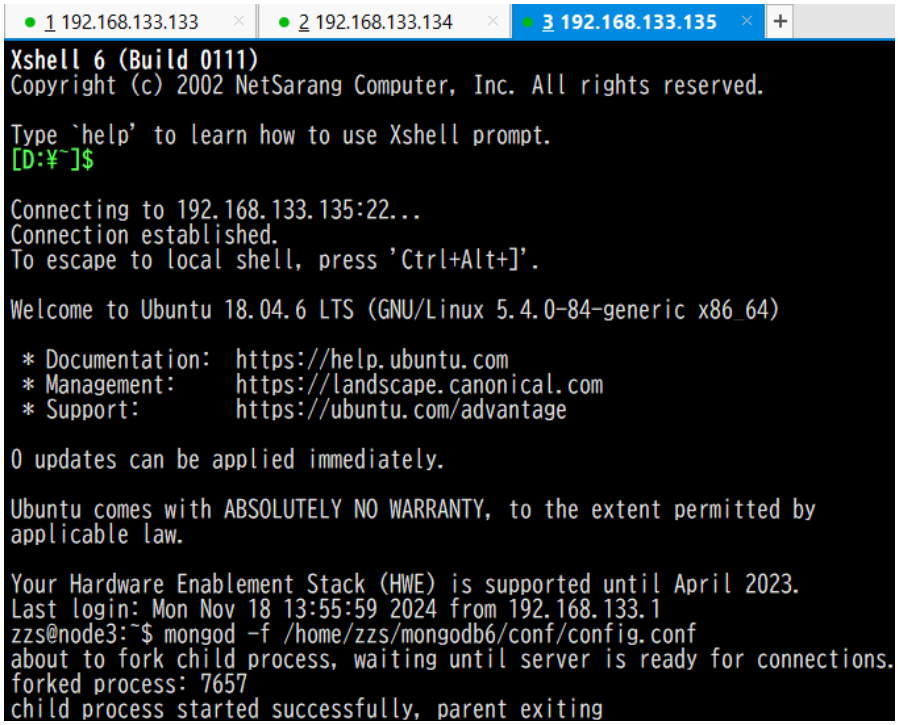
1.2配置复制集

1.2.1分别启动三台服务器的配置服务

```
cd /home/zzs/mongodb6/bin
chmod -R  777 /home/zzs/mongodb6/
sudo apt-get install libcurl4 #根据报错自行修改
sudo apt install mongodb-server-core
mongod -f /home/zzs/mongodb6/conf/config.conf
```







1.2.2连接mongo,只需在任意一台机器执行即可

```
sudo apt install mongodb-clients
mongo --host 192.168.133.133 --port 27018
```

1.2.3切换数据库

```
use admin
```

1.2.4初始化复制

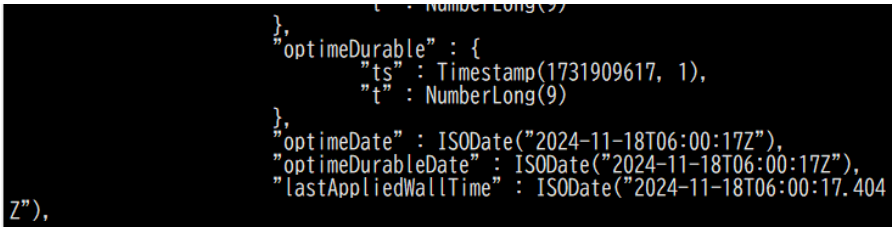
```
rs.initiate({_id:"configs",members:[{_id:0,host: "192.168.133.133:27018"},
{_id:1,host: "192.168.133.134:27018"},{_id:2,host:
"192.168.133.135:27018"}]})
```

```
zzs@node1:~$ mongo --host 192.168.133.133 --port 27018
MongoDB shell version v3.6.3
connecting to: mongodb://192.168.133.133:27018/
MongoDB server version: 6.0.19
WARNING: shell and server versions do not match
Server has startup warnings:
{"t":{"$date":"2024-11-18T13:58:26.500+08:00"},"s":"I",  "c":"STORAGE",  "id":22
297,   "ctx":"initandlisten","msg":"Using the XFS filesystem is strongly recomme
nded with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prod
notes-filesystem","tags":["startupWarnings"]}

{"t":{"$date":"2024-11-18T13:58:30.976+08:00"},"s":"W",  "c":"CONTROL",  "id":22
120,   "ctx":"initandlisten","msg":"Access control is not enabled for the databa
se. Read and write access to data and configuration is unrestricted","tags":["st
artupWarnings"]}

{"t":{"$date":"2024-11-18T13:58:30.976+08:00"},"s":"W",  "c":"CONTROL",  "id":22
184,   "ctx":"initandlisten","msg":"Soft rlimits for open file descriptors too l
ow","attr":{"currentValue":1024,"recommendedMinimum":64000},"tags":["startupWarn
ings"]}

configs:SECONDARY> use admin
switched to db admin
configs:SECONDARY> rs.initiate({ id:"configs",members:[{ id:0,host: "192.168.133
.133:27018"},{ id:1,host: "192.168.133.134:27018"},{ id:2,host: "192.168.133.135
:27018"}]})
{
        "ok" : 0,
        "errmsg" : "already initialized",
        "code" : 23,
        "codeName" : "AlreadyInitialized",
        "lastCommittedOpTime" : Timestamp(1731909606, 1),
        "$clusterTime" : {
                "clusterTime" : Timestamp(1731909606, 1),
                "signature" : {
                        "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAA="),
                        "keyId" : NumberLong(0)
                }
        },
        "operationTime" : Timestamp(1731909606, 1)
}
```

查看状态:

```
rs.status()
```


1 192.168.133.133
2 192.168.133.134
3 192.168.133.135
}
configs:SECONDARY> rs.status()
{
"set" : "configs",
"date" : ISODate("2024-11-18T06:00:18.350Z"),
"myState" : 2,
"term" : NumberLong(9),
"syncSourceHost" : "192.168.133.135:27018",
"syncSourceId" : 2,
"configsvr" : true,
"heartbeatIntervalMillis" : NumberLong(2000),
"majorityVoteCount" : 2,
"writeMajorityCount" : 2,
"votingMembersCount" : 3,
"writableVotingMembersCount" : 3,
"optimes" : {
"lastCommittedOpTime" : {
"ts" : Timestamp(1731909618, 1),
"t" : NumberLong(9)
},
"lastCommittedWallTime" : ISODate("2024-11-18T06:00:18.404Z"),
"readConcernMajorityOpTime" : {
"ts" : Timestamp(1731909618, 1),
"t" : NumberLong(9)
},
"appliedOpTime" : {
"ts" : Timestamp(1731909618, 1),
"t" : NumberLong(9)
},
"durableOpTime" : {
"ts" : Timestamp(1731909618, 1),
"t" : NumberLong(9)
},
"lastAppliedWallTime" : ISODate("2024-11-18T06:00:18.404Z"),
"lastDurableWallTime" : ISODate("2024-11-18T06:00:18.404Z")
},
"lastStableRecoveryTimestamp" : Timestamp(1731909570, 1),
"electionParticipantMetrics" : {
"votedForCandidate" : true,
"electionTerm" : NumberLong(9),
"lastVoteDate" : ISODate("2024-11-18T05:58:44.358Z"),
"electionCandidateMemberId" : 1,
"voteReason" : "",
"lastAppliedOpTimeAtElection" : {
1 192.168.133.133
2 192.168.133.134
3 192.168.133.135
"members" : [
{
"_id" : 0,
"name" : "192.168.133.133:27018",
"health" : 1,
"state" : 2,
"stateStr" : "SECONDARY",
"uptime" : 112,
"optime" : {
"ts" : Timestamp(1731909618, 1),
"t" : NumberLong(9)
},
"optimeDate" : ISODate("2024-11-18T06:00:18Z"),
"lastAppliedWallTime" : ISODate("2024-11-18T06:00:18.404
Z"),
"lastDurableWallTime" : ISODate("2024-11-18T06:00:18.404
Z"),
"syncSourceHost" : "192.168.133.135:27018",
"syncSourceId" : 2,
"infoMessage" : "",
"configVersion" : 1,
"configTerm" : 9,
"self" : true,
"lastHeartbeatMessage" : ""
},
{
"_id" : 1,
"name" : "192.168.133.134:27018",
"health" : 1,
"state" : 1,
"stateStr" : "PRIMARY",
"uptime" : 106,
"optime" : {
"ts" : Timestamp(1731909617, 1),



1.3配置分片服务部署

1.3.1分片服务部署(3台服务器执行相同操作)

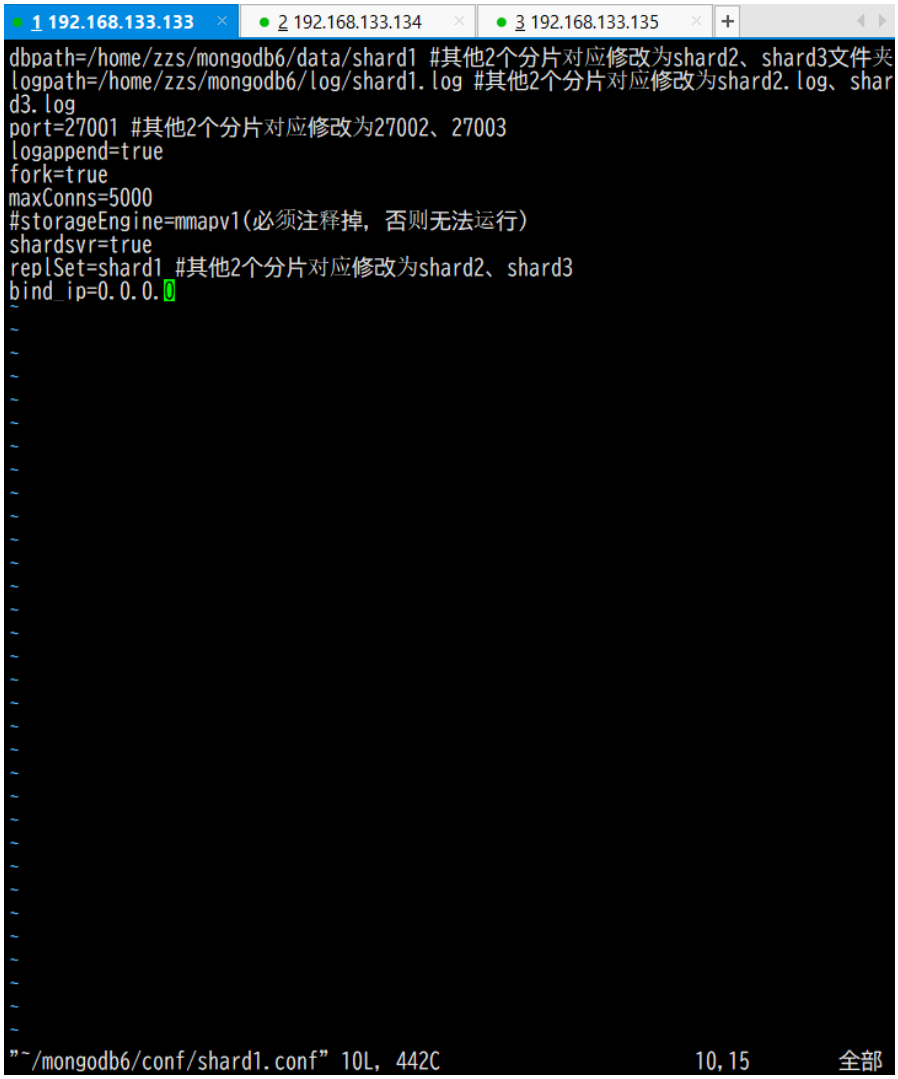
在/home/zzs/mongodb6/conf目录创建shard1.conf、shard2.conf、shard3.conf。

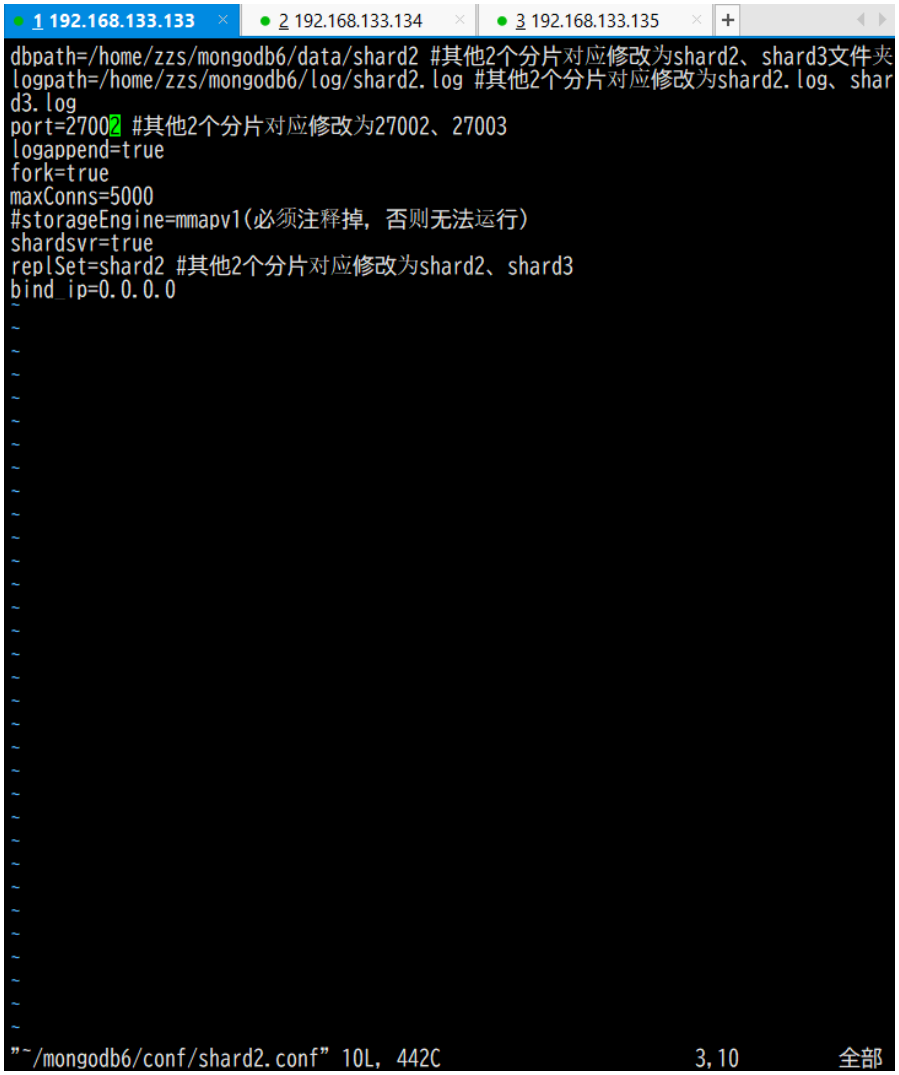
```
touch /home/zzs/mongodb6/conf/shard1.conf
touch /home/zzs/mongodb6/conf/shard2.conf
touch /home/zzs/mongodb6/conf/shard3.conf
```

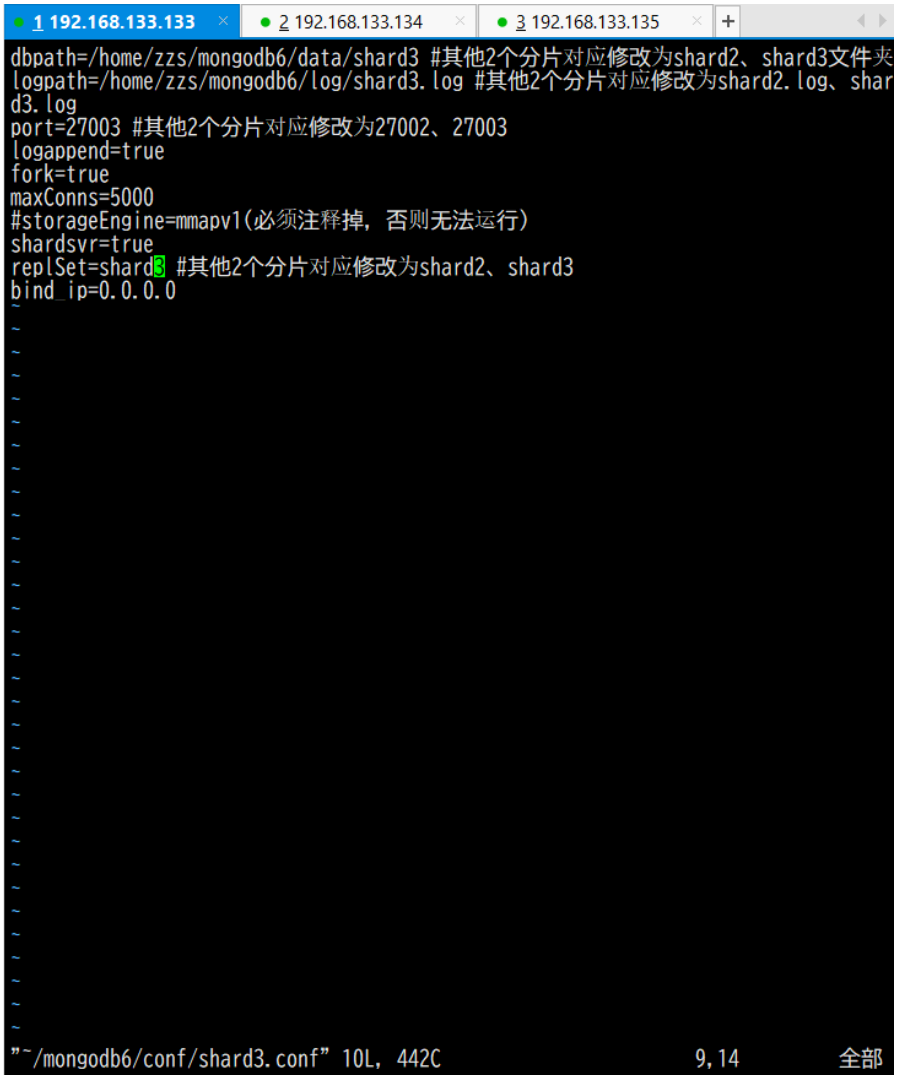
```
vi /home/zzs/mongodb6/conf/shard1.conf
vi /home/zzs/mongodb6/conf/shard2.conf
vi /home/zzs/mongodb6/conf/shard3.conf
```

内容如下：

```
dbpath=/home/zzs/mongodb6/data/shard1 #其他2个分片对应修改为shard2、shard3文件夹
logpath=/home/zzs/mongodb6/log/shard1.log #其他2个分片对应修改为shard2.log、shard3.log
port=27001 #其他2个分片对应修改为27002、27003
logappend=true
fork=true
maxConns=5000
#storageEngine=mmapv1(必须注释掉，否则无法运行)
shardsvr=true
replSet=shard1 #其他2个分片对应修改为shard2、shard3
bind_ip=0.0.0.0
```


1 192.168.133.133
2 192.168.133.134
3 192.168.133.135
dbpath=/home/zzs/mongodb6/data/shard1 #其他2个分片对应修改为shard2、shard3文件夹
logpath=/home/zzs/mongodb6/log/shard1.log #其他2个分片对应修改为shard2.log、shard3.log
port=27001 #其他2个分片对应修改为27002、27003
logappend=true
fork=true
maxConns=5000
#storageEngine=mmapv1(必须注释掉，否则无法运行)
shardsvr=true
replSet=shard1 #其他2个分片对应修改为shard2、shard3
bind_ip=0.0.0.0
"~/mongodb6/conf/shard1.conf" 10L, 442C
10,15
全部


1 192.168.133.133
2 192.168.133.134
3 192.168.133.135
dbpath=/home/zzs/mongodb6/data/shard2 #其他2个分片对应修改为shard2、shard3文件夹
logpath=/home/zzs/mongodb6/log/shard2.log #其他2个分片对应修改为shard2.log、shard3.log
port=27002 #其他2个分片对应修改为27002、27003
logappend=true
fork=true
maxConns=5000
#storageEngine=mmapv1(必须注释掉，否则无法运行)
shardsvr=true
replSet=shard2 #其他2个分片对应修改为shard2、shard3
bind_ip=0.0.0.0
"~/mongodb6/conf/shard2.conf" 10L, 442C
3,10
全部



端口分别是27001、27002、27003，分别对应shard1.conf、shard2.conf、shard3.conf。还有数据存放目录、日志文件这几个地方都需要对应修改。

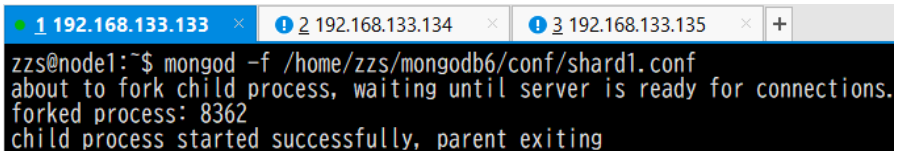
1.3.2将分片配置为复制集

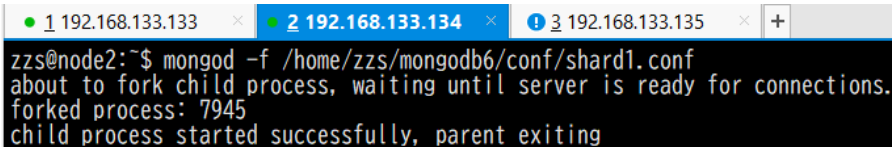
1.3.2.1启动shard1.conf分片服务

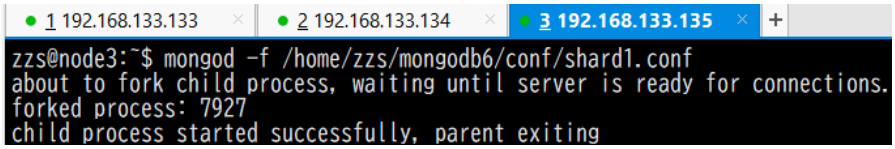
在3台机器的相同端口形成一个分片的复制集，由于3台机器都需要这3个文件，所以根据这9个配置文件分别启动分片服务

```
mongod -f /home/zzs/mongodb6/conf/shard1.conf
```

以上命令要分别启动三台服务器。



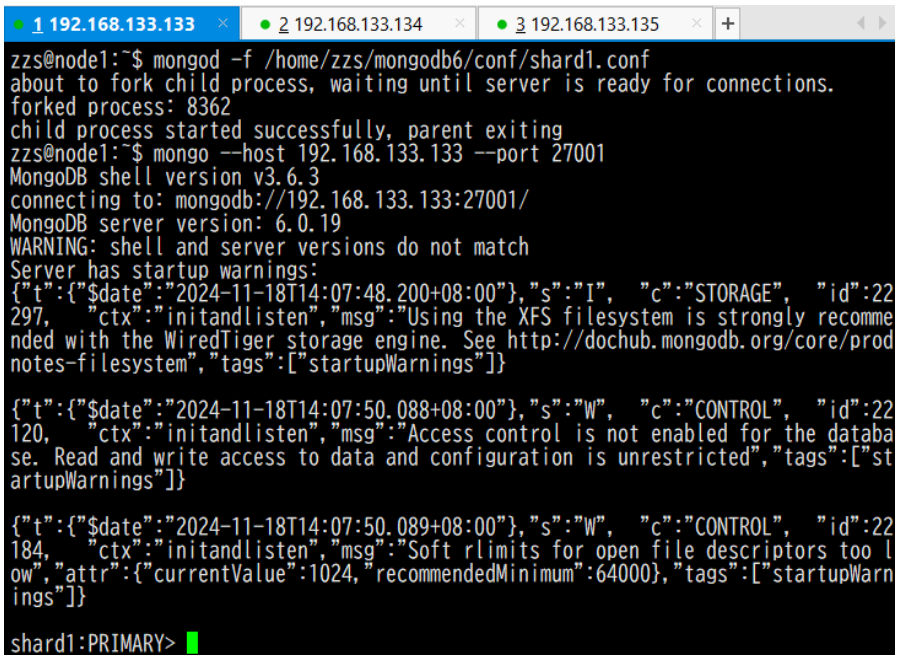


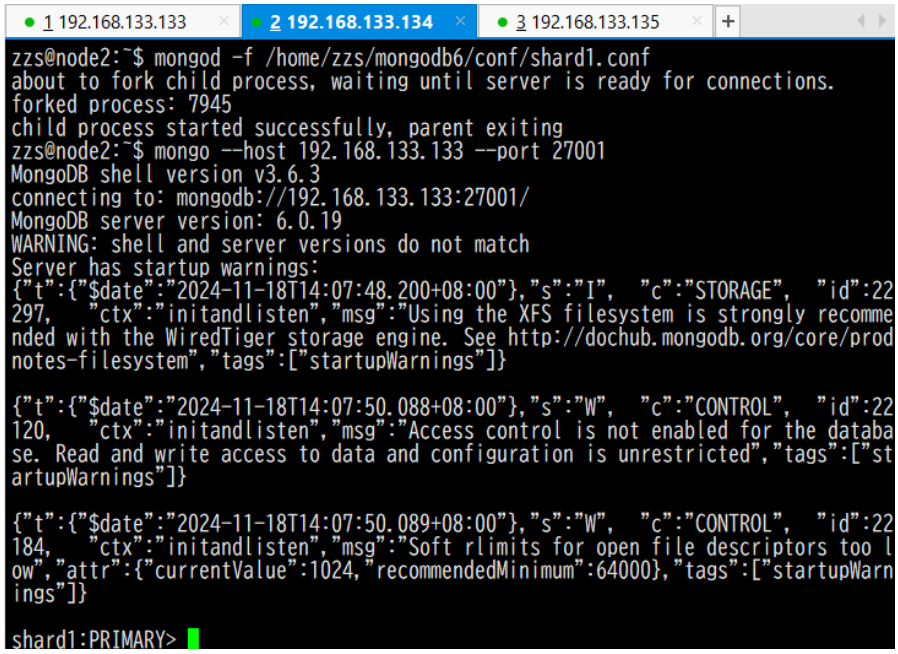


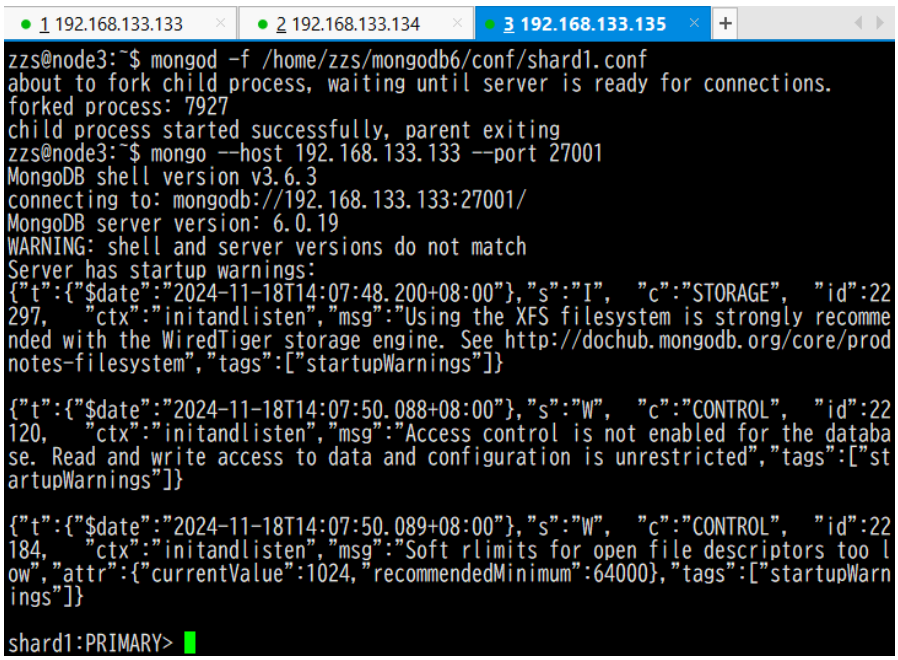
1.3.2.2连接mongo

```
mongo --host 192.168.133.133 --port 27001
mongo --host 192.168.133.134 --port 27001
mongo --host 192.168.133.135 --port 27001
```

以上命令要分别在三台机器上执行。



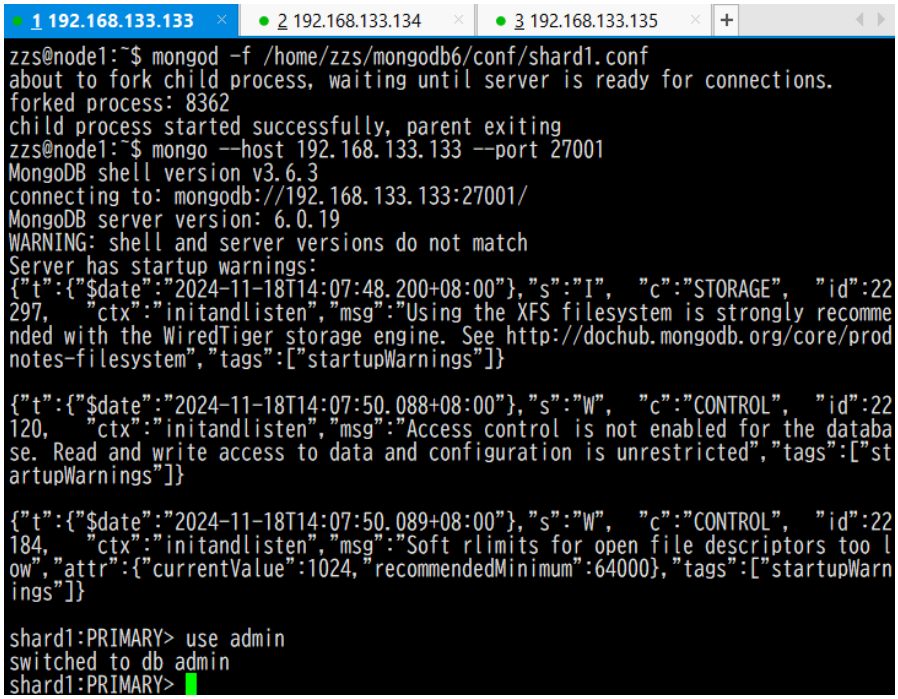




1.3.2.3切换数据库

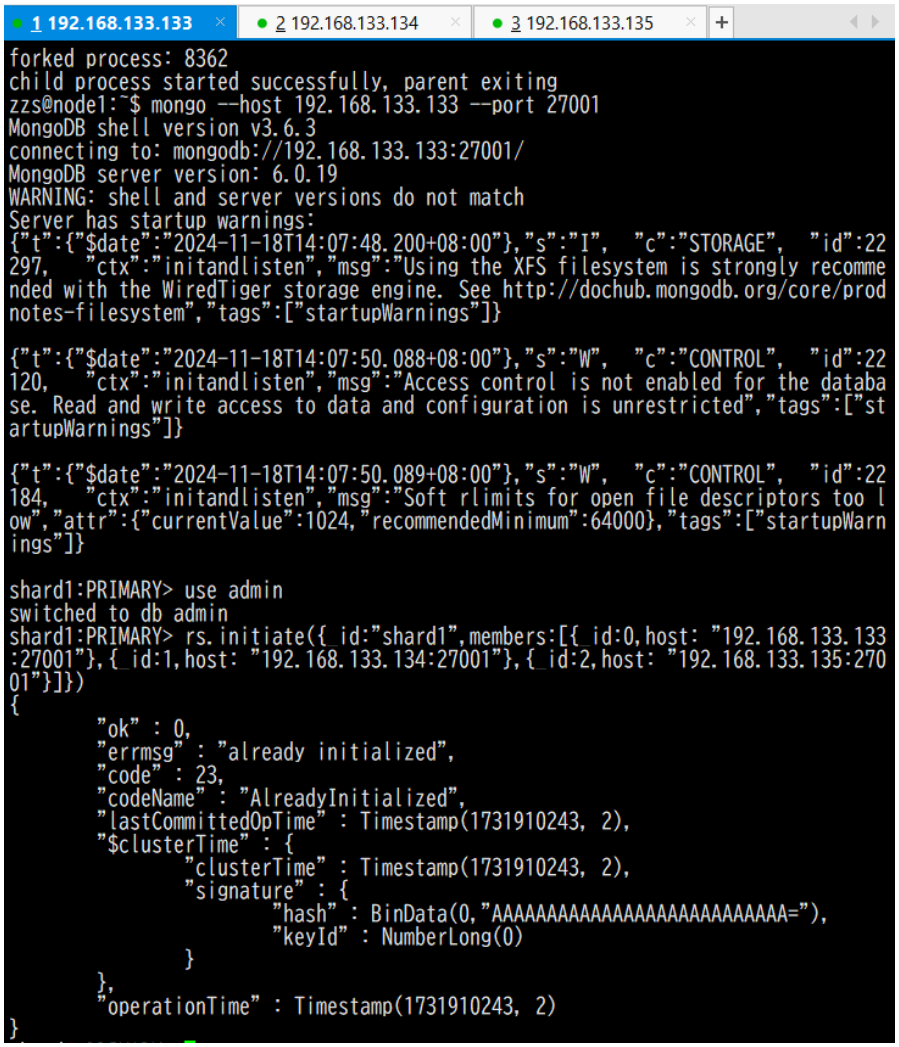
```
use admin
```

以上命令一台机器上执行即可。

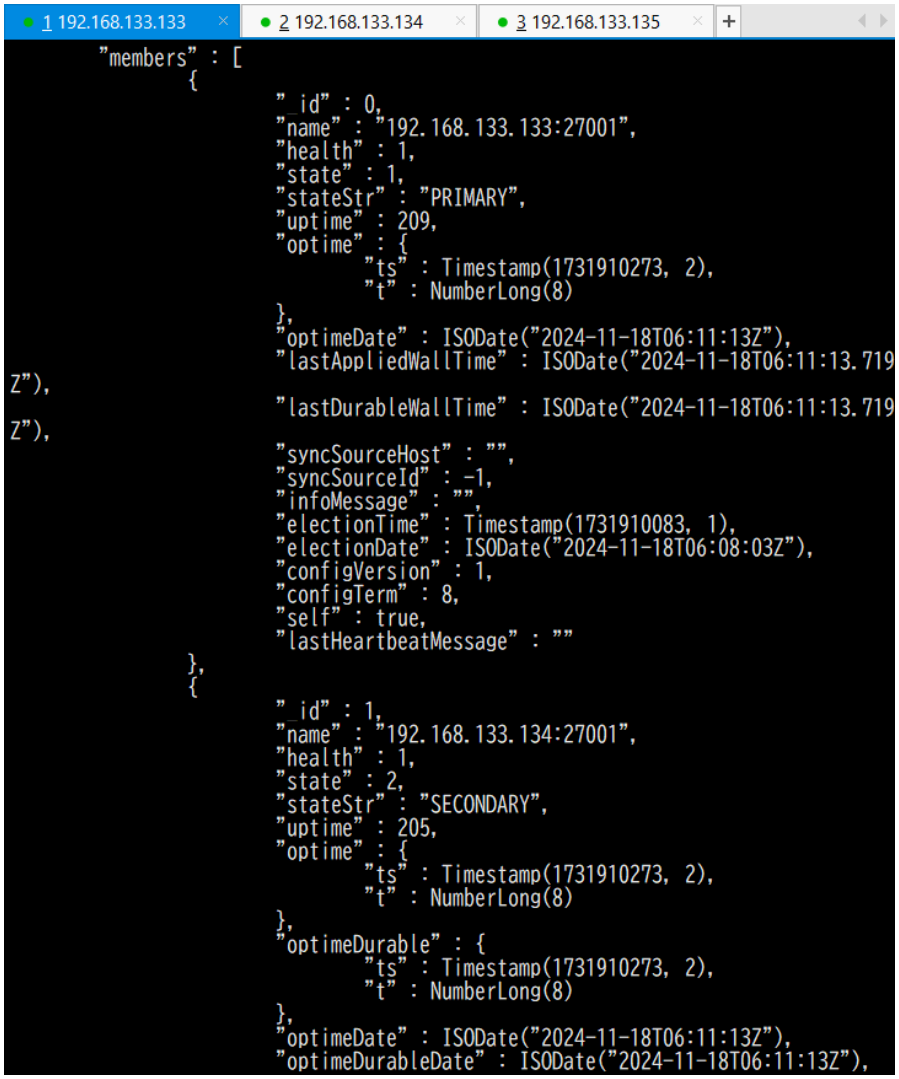


1.3.2.4初始化复制集

```
rs.initiate({_id:"shard1",members:[{_id:0,host: "192.168.133.133:27001"},
{_id:1,host: "192.168.133.134:27001"},{_id:2,host:
"192.168.133.135:27001"}]})
```


1 192.168.133.133
2 192.168.133.134
3 192.168.133.135
forked process: 8362
child process started successfully, parent exiting
zzs@node1:~$ mongo --host 192.168.133.133 --port 27001
MongoDB shell version v3.6.3
connecting to: mongodb://192.168.133.133:27001/
MongoDB server version: 6.0.19
WARNING: shell and server versions do not match
Server has startup warnings:
{"t":{"$date":"2024-11-18T14:07:48.200+08:00"},"s":"I", "c":"STORAGE", "id":22297, "ctx":"initandlisten","msg":"Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem","tags":["startupWarnings"]}
{"t":{"$date":"2024-11-18T14:07:50.088+08:00"},"s":"W", "c":"CONTROL", "id":22120, "ctx":"initandlisten","msg":"Access control is not enabled for the database. Read and write access to data and configuration is unrestricted","tags":["startupWarnings"]}
{"t":{"$date":"2024-11-18T14:07:50.089+08:00"},"s":"W", "c":"CONTROL", "id":22184, "ctx":"initandlisten","msg":"Soft rlimits for open file descriptors too low","attr":{"currentValue":1024,"recommendedMinimum":64000},"tags":["startupWarnings"]}
shard1:PRIMARY> use admin
switched to db admin
shard1:PRIMARY> rs.initiate({_id:"shard1",members:[{_id:0,host: "192.168.133.133:27001"},{_id:1,host: "192.168.133.134:27001"},{_id:2,host: "192.168.133.135:27001"}]})
{
"ok" : 0,
"errmsg" : "already initialized",
"code" : 23,
"codeName" : "AlreadyInitialized",
"lastCommittedOpTime" : Timestamp(1731910243, 2),
"$clusterTime" : {
"clusterTime" : Timestamp(1731910243, 2),
"signature" : {
"hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAA="),
"keyId" : NumberLong(0)
}
},
"operationTime" : Timestamp(1731910243, 2)
}


1 192.168.133.133
2 192.168.133.134
3 192.168.133.135
shard1:PRIMARY> rs.status()
{
"set" : "shard1",
"date" : ISODate("2024-11-18T06:11:17.624Z"),
"myState" : 1,
"term" : NumberLong(8),
"syncSourceHost" : "",
"syncSourceId" : -1,
"heartbeatIntervalMillis" : NumberLong(2000),
"majorityVoteCount" : 2,
"writeMajorityCount" : 2,
"votingMembersCount" : 3,
"writableVotingMembersCount" : 3,
"optimes" : {
"lastCommittedOpTime" : {
"ts" : Timestamp(1731910273, 2),
"t" : NumberLong(8)
},
"lastCommittedWallTime" : ISODate("2024-11-18T06:11:13.719Z"),
"readConcernMajorityOpTime" : {
"ts" : Timestamp(1731910273, 2),
"t" : NumberLong(8)
},
"appliedOpTime" : {
"ts" : Timestamp(1731910273, 2),
"t" : NumberLong(8)
},
"durableOpTime" : {
"ts" : Timestamp(1731910273, 2),
"t" : NumberLong(8)
},
"lastAppliedWallTime" : ISODate("2024-11-18T06:11:13.719Z"),
"lastDurableWallTime" : ISODate("2024-11-18T06:11:13.719Z")
},
"lastStableRecoveryTimestamp" : Timestamp(1731910243, 2),
"electionCandidateMetrics" : {
"lastElectionReason" : "electionTimeout",
"lastElectionDate" : ISODate("2024-11-18T06:08:03.686Z"),
"electionTerm" : NumberLong(8),
"lastCommittedOpTimeAtElection" : {
"ts" : Timestamp(0, 0),
"t" : NumberLong(-1)
},
"lastSeenOpTimeAtElection" : {

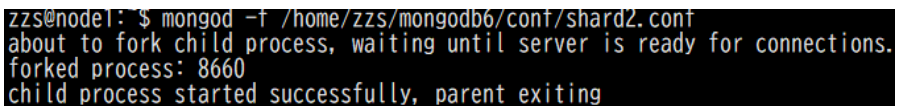


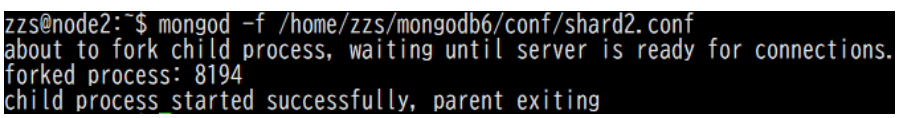
1.3.2.5启动shard1.conf分片服务

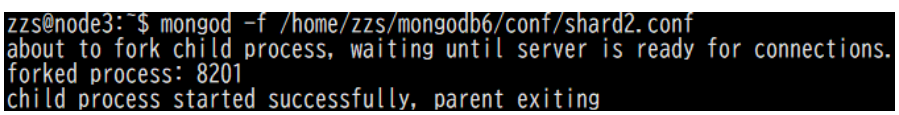
在3台机器的相同端口形成一个分片的复制集，由于3台机器都需要这3个文件，所以根据这9个配置文件分别启动分片服务

```
mongod -f /home/zzs/mongodb6/conf/shard2.conf
```

以上命令要分别启动三台服务器。







1.3.2.6连接mongo

```
mongo --host 192.168.133.133 --port 27002
mongo --host 192.168.133.134 --port 27002
mongo --host 192.168.133.135 --port 27002
```

以上命令要分别在三台机器上执行。

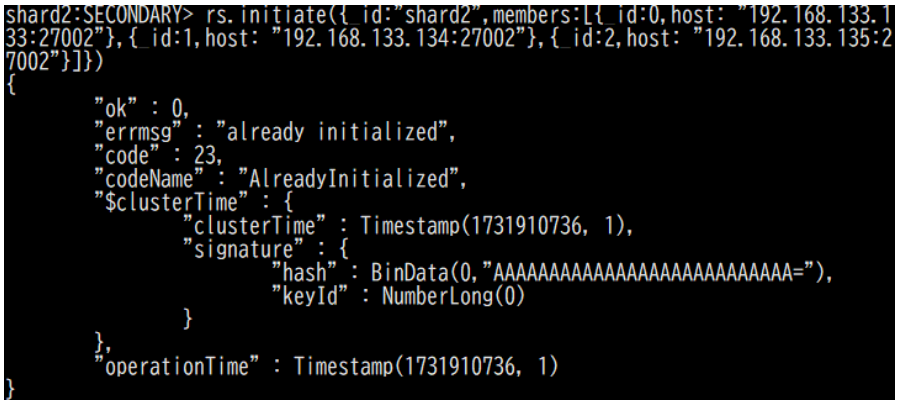
1.3.2.7切换数据库

```
use admin
```

以上命令一台机器上执行即可。

1.3.2.8初始化复制集

```
rs.initiate({_id:"shard2",members:[{_id:0,host: "192.168.133.133:27002"},
{_id:1,host: "192.168.133.134:27002"},{_id:2,host:
"192.168.133.135:27002"}]})
```



```
shard2:SECONDARY> rs.status()
{
        "set" : "shard2",
        "date" : ISODate("2024-11-18T06:19:43.466Z"),
        "myState" : 2,
        "term" : NumberLong(9),
        "syncSourceHost" : "192.168.133.133:27002",
        "syncSourceId" : 0,
        "heartbeatIntervalMillis" : NumberLong(2000),
        "majorityVoteCount" : 2,
        "writeMajorityCount" : 2,
        "votingMembersCount" : 3,
        "writableVotingMembersCount" : 3,
        "optimes" : {
                "lastCommittedOpTime" : {
                        "ts" : Timestamp(1731910776, 1),
                        "t" : NumberLong(9)
                },
                "lastCommittedWallTime" : ISODate("2024-11-18T06:19:36.530Z"),
                "readConcernMajorityOpTime" : {
                        "ts" : Timestamp(1731910776, 1),
                        "t" : NumberLong(9)
                },
                "appliedOpTime" : {
                        "ts" : Timestamp(1731910776, 1),
                        "t" : NumberLong(9)
                },
                "durableOpTime" : {
                        "ts" : Timestamp(1731910776, 1),
                        "t" : NumberLong(9)
                },
                "lastAppliedWallTime" : ISODate("2024-11-18T06:19:36.530Z"),
                "lastDurableWallTime" : ISODate("2024-11-18T06:19:36.530Z")
        },
        "lastStableRecoveryTimestamp" : Timestamp(1731910716, 1),
        "electionParticipantMetrics" : {
                "votedForCandidate" : true,
                "electionTerm" : NumberLong(9),
                "lastVoteDate" : ISODate("2024-11-18T06:13:56.853Z"),
                "electionCandidateMemberId" : 0,
                "voteReason" : "",
```

```
        },
        "members" : [
                {
                        "_id" : 0,
                        "name" : "192.168.133.133:27002",
                        "health" : 1,
                        "state" : 1,
                        "stateStr" : "PRIMARY",
                        "uptime" : 359,
                        "optime" : {
                                "ts" : Timestamp(1731910776, 1),
                                "t" : NumberLong(9)
                        },
                        "optimeDurable" : {
                                "ts" : Timestamp(1731910776, 1),
                                "t" : NumberLong(9)
                        },
                        "optimeDate" : ISODate("2024-11-18T06:19:36Z"),
                        "optimeDurableDate" : ISODate("2024-11-18T06:19:36Z"),
                        "lastAppliedWallTime" : ISODate("2024-11-18T06:19:36.530
Z"),
                        "lastDurableWallTime" : ISODate("2024-11-18T06:19:36.530
Z"),
                        "lastHeartbeat" : ISODate("2024-11-18T06:19:42.114Z"),
                        "lastHeartbeatRecv" : ISODate("2024-11-18T06:19:42.821Z"
),
                        "pingMs" : NumberLong(0),
                        "lastHeartbeatMessage" : "",
                        "syncSourceHost" : "",
                        "syncSourceId" : -1,
                        "infoMessage" : "",
                        "electionTime" : Timestamp(1731910436, 1),
                        "electionDate" : ISODate("2024-11-18T06:13:56Z"),
                        "configVersion" : 1,
                        "configTerm" : 9
                },
                {
                        "_id" : 1,
                        "name" : "192.168.133.134:27002",
                        "health" : 1,
                        "state" : 2,
                        "stateStr" : "SECONDARY",
                        "uptime" : 360,
                        "optime" : {
```

1.3.2.9启动shard3.conf分片服务

在3台机器的相同端口形成一个分片的复制集，由于3台机器都需要这3个文件，所以根据这9个配置文件分别启动分片服务

```
mongod -f /home/zzs/mongodb6/conf/shard3.conf
```

以上命令要分别启动三台服务器。

```
zzs@node1:~$ mongod -f /home/zzs/mongodb6/conf/shard3.conf
about to fork child process, waiting until server is ready for connections.
forked process: 8930
child process started successfully, parent exiting
```

```
zzs@node2:~$ mongod -f /home/zzs/mongodb6/conf/shard3.conf
about to fork child process, waiting until server is ready for connections.
forked process: 8463
child process started successfully, parent exiting
```

```
zzs@node3:~$ mongod -f /home/zzs/mongodb6/conf/shard3.conf
about to fork child process, waiting until server is ready for connections.
forked process: 8473
child process started successfully, parent exiting
```

1.3.2.10连接mongo

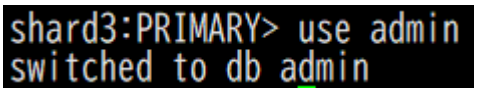
```
mongo --host 192.168.133.133 --port 27003
mongo --host 192.168.133.134 --port 27003
mongo --host 192.168.133.135 --port 27003
```

以上命令要分别在三台机器上执行。

1.3.2.11切换数据库

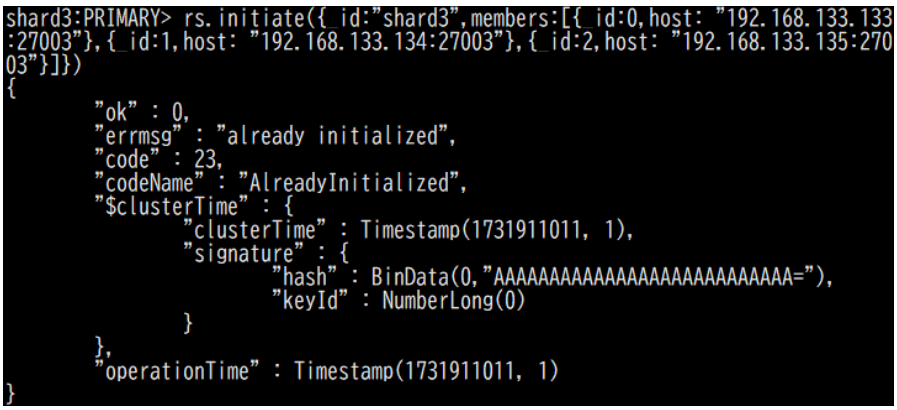
```
use admin
```

以上命令一台机器上执行即可。



1.3.2.12初始化复制集

```
rs.initiate({_id:"shard3",members:[{_id:0,host: "192.168.133.133:27003"},
{_id:1,host: "192.168.133.134:27003"},{_id:2,host:
"192.168.133.135:27003"}]})
```



```
shard3:PRIMARY> rs.status()
{
        "set" : "shard3",
        "date" : ISODate("2024-11-18T06:24:05.307Z"),
        "myState" : 1,
        "term" : NumberLong(7),
        "syncSourceHost" : "",
        "syncSourceId" : -1,
        "heartbeatIntervalMillis" : NumberLong(2000),
        "majorityVoteCount" : 2,
        "writeMajorityCount" : 2,
        "votingMembersCount" : 3,
        "writableVotingMembersCount" : 3,
        "optimes" : {
                "lastCommittedOpTime" : {
                        "ts" : Timestamp(1731911041, 1),
                        "t" : NumberLong(7)
                },
                "lastCommittedWallTime" : ISODate("2024-11-18T06:24:01.188Z"),
                "readConcernMajorityOpTime" : {
                        "ts" : Timestamp(1731911041, 1),
                        "t" : NumberLong(7)
                },
                "appliedOpTime" : {
                        "ts" : Timestamp(1731911041, 1),
                        "t" : NumberLong(7)
                },
                "durableOpTime" : {
                        "ts" : Timestamp(1731911041, 1),
                        "t" : NumberLong(7)
                },
                "lastAppliedWallTime" : ISODate("2024-11-18T06:24:01.188Z"),
                "lastDurableWallTime" : ISODate("2024-11-18T06:24:01.188Z")
        },
        "lastStableRecoveryTimestamp" : Timestamp(1731910991, 1),
        "electionCandidateMetrics" : {
                "lastElectionReason" : "electionTimeout",
                "lastElectionDate" : ISODate("2024-11-18T06:21:31.170Z"),
                "electionTerm" : NumberLong(7),
                "lastCommittedOpTimeAtElection" : {
                        "ts" : Timestamp(0, 0),
                        "t" : NumberLong(-1)
                },
```

```
        },
        "members" : [
                {
                        "_id" : 0,
                        "name" : "192.168.133.133:27003",
                        "health" : 1,
                        "state" : 2,
                        "stateStr" : "SECONDARY",
                        "uptime" : 159,
                        "optime" : {
                                "ts" : Timestamp(1731911041, 1),
                                "t" : NumberLong(7)
                        },
                        "optimeDurable" : {
                                "ts" : Timestamp(1731911041, 1),
                                "t" : NumberLong(7)
                        },
                        "optimeDate" : ISODate("2024-11-18T06:24:01Z"),
                        "optimeDurableDate" : ISODate("2024-11-18T06:24:01Z"),
                        "lastAppliedWallTime" : ISODate("2024-11-18T06:24:01.188
Z"),
                        "lastDurableWallTime" : ISODate("2024-11-18T06:24:01.188
Z"),
                        "lastHeartbeat" : ISODate("2024-11-18T06:24:05.277Z"),
                        "lastHeartbeatRecv" : ISODate("2024-11-18T06:24:04.285Z"
),
                        "pingMs" : NumberLong(0),
                        "lastHeartbeatMessage" : "",
                        "syncSourceHost" : "192.168.133.135:27003",
                        "syncSourceId" : 2,
                        "infoMessage" : "",
                        "configVersion" : 1,
                        "configTerm" : 7
                },
                {
                        "_id" : 1,
                        "name" : "192.168.133.134:27003",
                        "health" : 1,
                        "state" : 2,
                        "stateStr" : "SECONDARY",
                        "uptime" : 161,
                        "optime" : {
                                "ts" : Timestamp(1731911041, 1),
                                "t" : NumberLong(7)
```


1.4 路由服务部署(3台服务器执行相同操作)

1.4.1配置mongos.conf文件

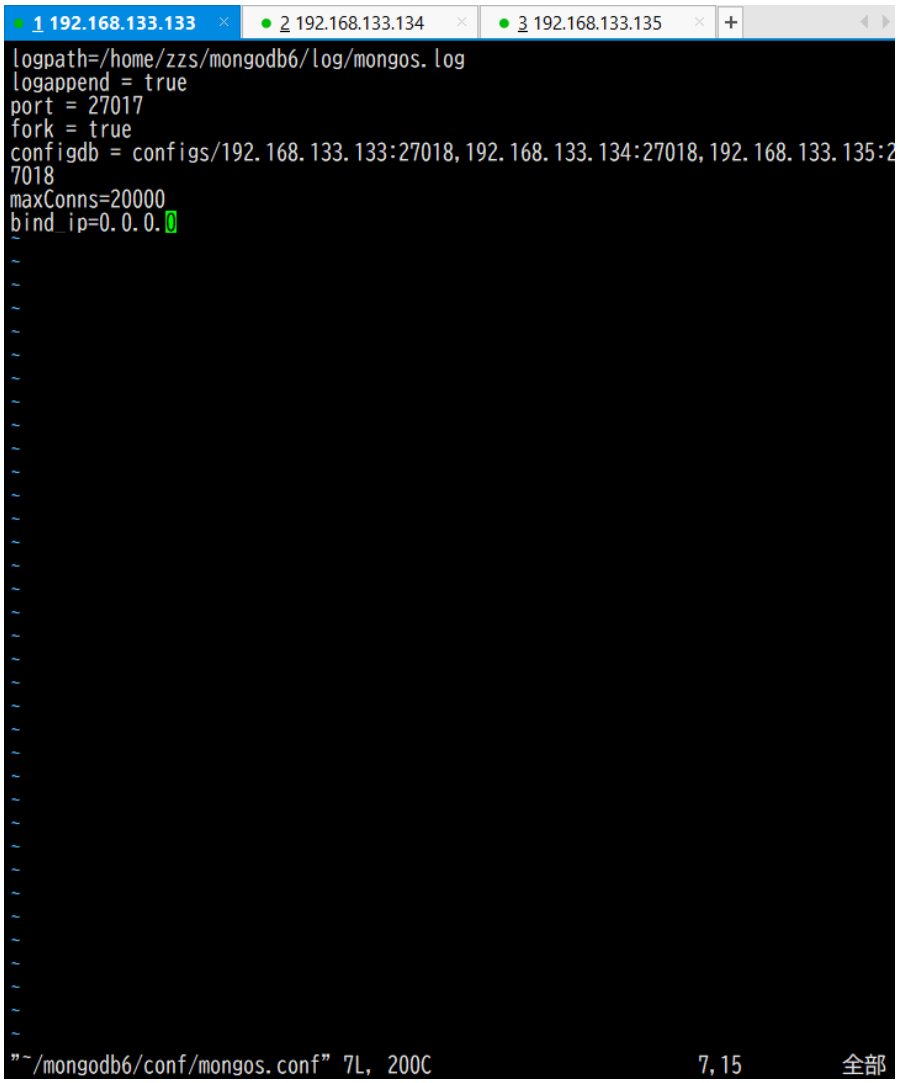
在/home/zzs/mongodb6/conf目录创建mongos.confe。

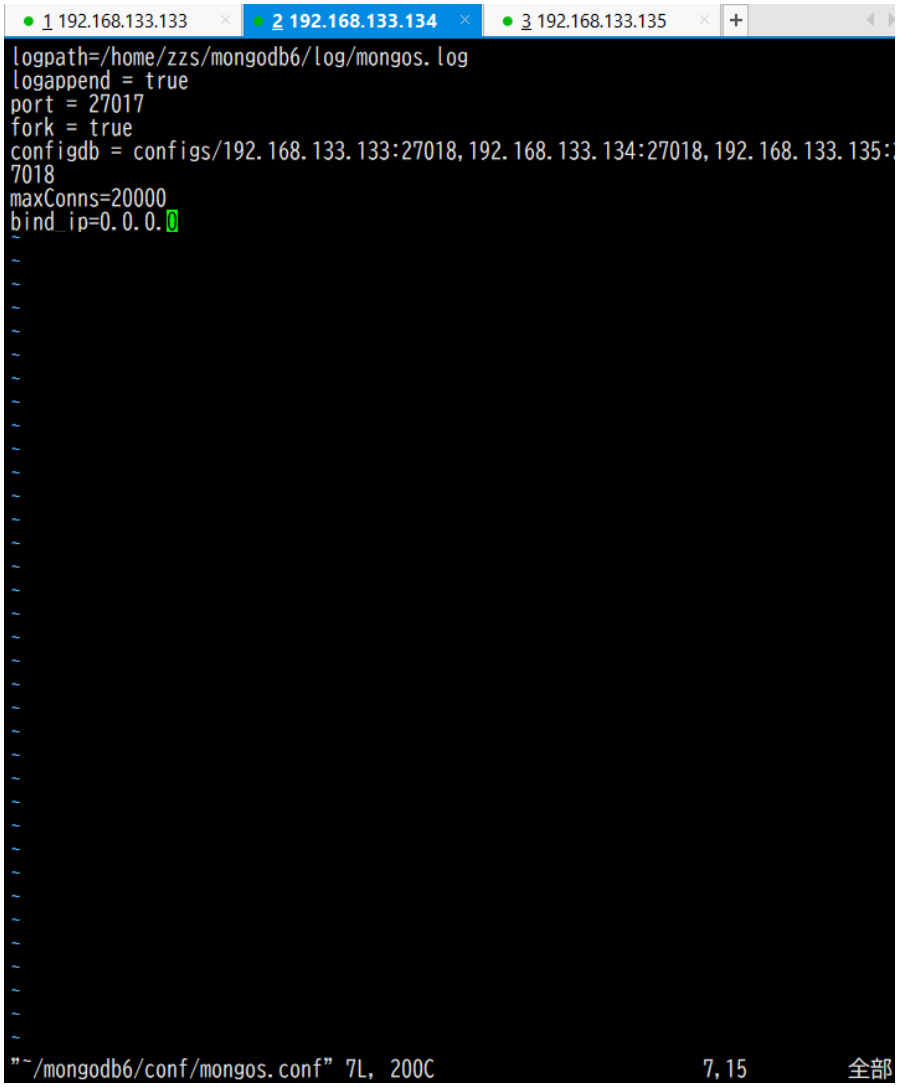
```
touch /home/zzs/mongodb6/conf/mongos.conf
```

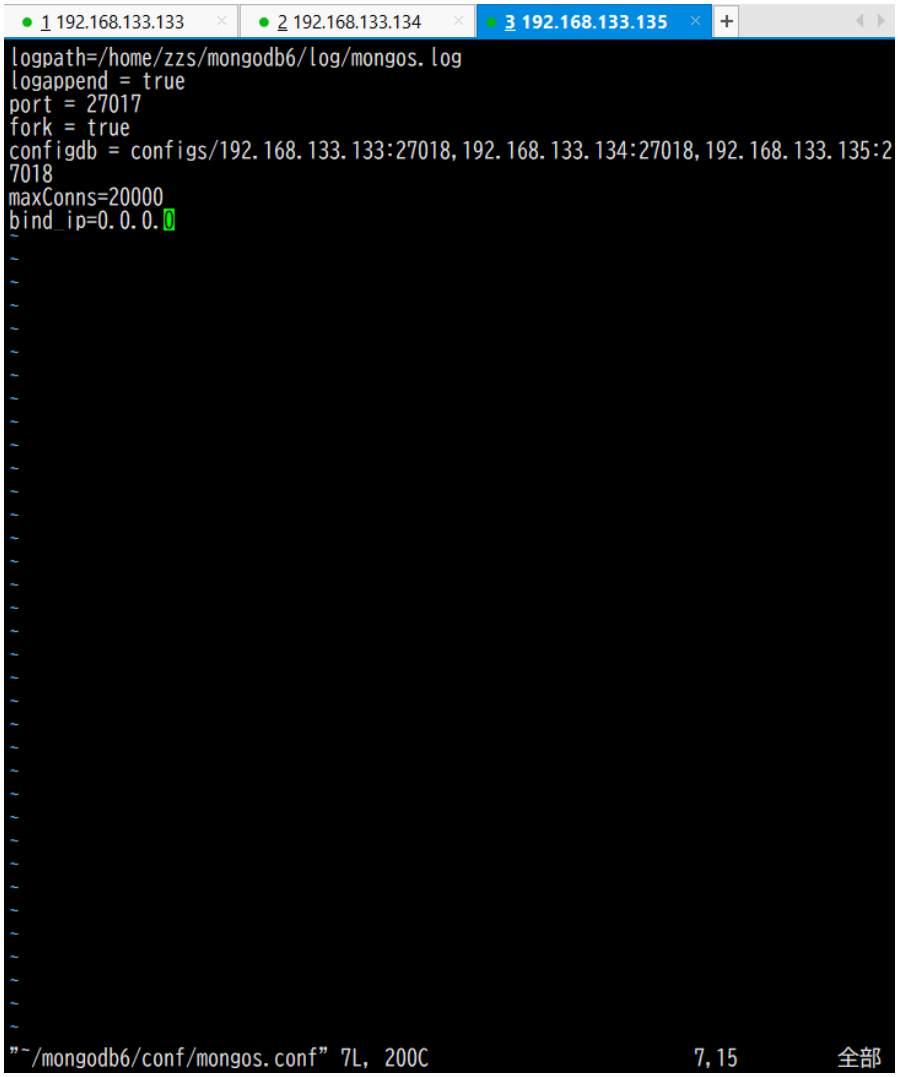
```
vi /home/zzs/mongodb6/conf/mongos.conf
```

内容如下：

```
logpath=/home/zzs/mongodb6/log/mongos.log
logappend = true
port = 27017
fork = true
configdb =
configs/192.168.133.133:27018,192.168.133.134:27018,192.168.133.135:2701
8
maxConns=20000
bind_ip=0.0.0.0
```




1 192.168.133.133
2 192.168.133.134
3 192.168.133.135
logpath=/home/zzs/mongodb6/log/mongos.log
logappend = true
port = 27017
fork = true
configdb = configs/192.168.133.133:27018,192.168.133.134:27018,192.168.133.135:
7018
maxConns=20000
bind_ip=0.0.0.0
"~/mongodb6/conf/mongos.conf" 7L, 200C
7,15
全部



1.4.2启动mongos

```
mongos -f /home/zzs/mongodb6/conf/mongos.conf
```

```
zzs@node1:~$ mongos -f /home/zzs/mongodb6/conf/mongos.conf
about to fork child process, waiting until server is ready for connections.
forked process: 9208
child process started successfully, parent exiting
```

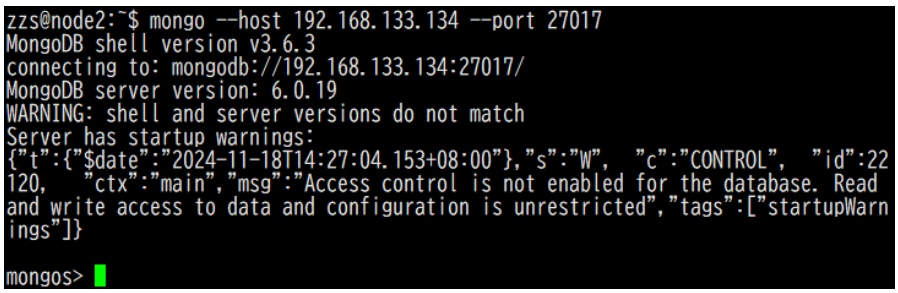
```
zzs@node2:~$ mongos -f /home/zzs/mongodb6/conf/mongos.conf
about to fork child process, waiting until server is ready for connections.
forked process: 8733
child process started successfully, parent exiting
```

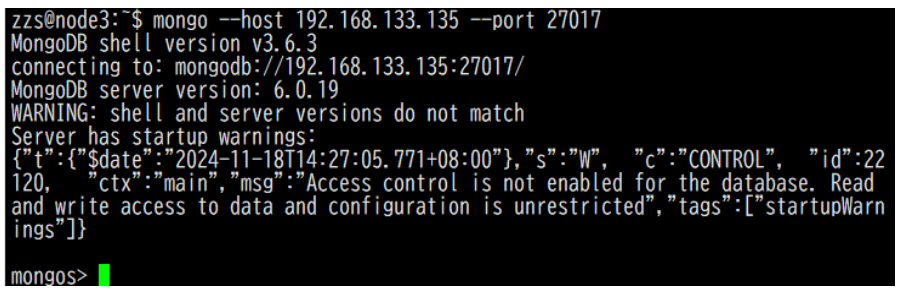
```
zzs@node3:~$ mongos -f /home/zzs/mongodb6/conf/mongos.conf
about to fork child process, waiting until server is ready for connections.
forked process: 8783
child process started successfully, parent exiting
```

1.4.3启动分片功能

1.4.3.1连接mongo

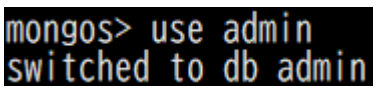
```
mongo --host 192.168.133.133 --port 27017
mongo --host 192.168.133.134 --port 27017
mongo --host 192.168.133.135 --port 27017
```





1.4.3.2切换数据库

```
use admin
```



1.4.3.3添加分片(只需在一台机器执行即可)

```
sh.addShard("shard1/192.168.133.133:27001,192.168.133.134:27001,192.168
.133.135:27001")
```

1.4.3.4查看集群状态

```
sh.status()
```

```
mongos> sh.status()
--- Sharding Status ---
  sharding version: {
        "_id" : 1,
        "minCompatibleVersion" : 5,
        "currentVersion" : 6,
        "clusterId" : ObjectId("6721882402554fb31e9e0b55")
  }
  shards:
        {  "_id" : "shard1",  "host" : "shard1/192.168.133.133:27001,192.168.133
.134:27001,192.168.133.135:27001",  "state" : 1,  "topologyTime" : Timestamp(173
0251847, 5) }
  active mongoses:
        "6.0.19" : 3
  autosplit:
        Currently enabled: yes
  balancer:
        Currently enabled:  yes
        Currently running:  no
        Failed balancer rounds in last 5 attempts:  0
        Migration Results for the last 24 hours:
                No recent migrations
  databases:
        {  "_id" : "config",  "primary" : "config",  "partitioned" : true }
                config.system.sessions
                        shard key: { "_id" : 1 }
                        unique: false
                        balancing: true
                        chunks:
```

1.5后期运维

mongodb的启动顺序是，先启动配置服务器，在启动分片，最后启动mongos。

```
mongod -f /home/zzs/mongodb6/conf/config.conf

mongod -f /home/zzs/mongodb6/conf/shard1.conf

mongod -f /home/zzs/mongodb6/conf/shard2.conf

mongod -f /home/zzs/mongodb6/conf/shard3.conf

mongos -f /home/zzs/mongodb6/conf/mongos.conf
```

```
zzs@node1:~$ mongod -f /home/zzs/mongodb6/conf/config.conf
about to fork child process, waiting until server is ready for connections.
forked process: 14877
child process started successfully, parent exiting
zzs@node1:~$ mongod -f /home/zzs/mongodb6/conf/shard1.conf
about to fork child process, waiting until server is ready for connections.
forked process: 14972
child process started successfully, parent exiting
zzs@node1:~$ mongod -f /home/zzs/mongodb6/conf/shard2.conf
about to fork child process, waiting until server is ready for connections.
forked process: 15115
child process started successfully, parent exiting
zzs@node1:~$ mongod -f /home/zzs/mongodb6/conf/shard3.conf
about to fork child process, waiting until server is ready for connections.
forked process: 15239
child process started successfully, parent exiting
zzs@node1:~$ mongos -f /home/zzs/mongodb6/conf/mongos.conf
about to fork child process, waiting until server is ready for connections.
forked process: 15346
child process started successfully, parent exiting
```

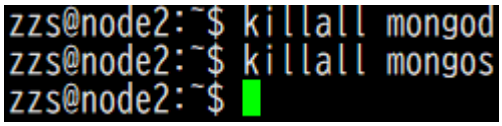
```
zzs@node2:~$ mongod -f /home/zzs/mongodb6/conf/config.conf
about to fork child process, waiting until server is ready for connections.
forked process: 4897
child process started successfully, parent exiting
zzs@node2:~$ mongod -f /home/zzs/mongodb6/conf/shard1.conf
about to fork child process, waiting until server is ready for connections.
forked process: 4990
ERROR: child process failed, exited with 48
To see additional information in this output, start without the "--fork" option.
zzs@node2:~$ mongod -f /home/zzs/mongodb6/conf/shard2.conf
about to fork child process, waiting until server is ready for connections.
forked process: 5014
child process started successfully, parent exiting
zzs@node2:~$ mongod -f /home/zzs/mongodb6/conf/shard3.conf
about to fork child process, waiting until server is ready for connections.
forked process: 5098
child process started successfully, parent exiting
zzs@node2:~$ mongos -f /home/zzs/mongodb6/conf/mongos.conf
about to fork child process, waiting until server is ready for connections.
forked process: 5194
child process started successfully, parent exiting
```

```
zzs@node3:~$ mongod -f /home/zzs/mongodb6/conf/config.conf
about to fork child process, waiting until server is ready for connections.
forked process: 10483
child process started successfully, parent exiting
zzs@node3:~$ mongod -f /home/zzs/mongodb6/conf/shard1.conf
about to fork child process, waiting until server is ready for connections.
forked process: 10586
child process started successfully, parent exiting
zzs@node3:~$ mongod -f /home/zzs/mongodb6/conf/shard2.conf
about to fork child process, waiting until server is ready for connections.
forked process: 10696
child process started successfully, parent exiting
zzs@node3:~$ mongod -f /home/zzs/mongodb6/conf/shard3.conf
about to fork child process, waiting until server is ready for connections.
forked process: 10790
child process started successfully, parent exiting
zzs@node3:~$ mongos -f /home/zzs/mongodb6/conf/mongos.conf
about to fork child process, waiting until server is ready for connections.
forked process: 10901
child process started successfully, parent exiting
```

关闭时，直接killall杀掉所有进程

```
killall mongod
killall mongos
```


zzs@node1:~$ killall mongod
zzs@node1:~$ killall mongos
zzs@node1:~$


zzs@node2:~$ killall mongod
zzs@node2:~$ killall mongos
zzs@node2:~$


zzs@node3:~$ killall mongod
zzs@node3:~$ killall mongos
zzs@node3:~$