一、集群环境

redis: redis-5.0.5

centos ip: 192.168.238.160

三主三从：7001~7006

扩容一主一从：7007~7008

二、集群环境搭建

1.下载并安装

```
cd /usr/local/
mkdir -p redis/redis-cluster/7001
cd redis/redis-cluster/
wget http://download.redis.io/releases/redis-5.0.5.tar.gz
tar -zxvf redis-5.0.5.tar.gz
cd redis-5.0.5/src/
make install PREFIX=/usr/local/redis/redis-cluster/7001
```

2.修改7001实例配置文件redis.conf

```
cp /usr/local/redis/redis-cluster/redis-5.0.5/redis.conf /usr/local/redis/redis-cluster/7001/bin/
```

```
cd /usr/local/redis/redis-cluster/7001/bin/
vim redis.conf

#bind 127.0.0.1
protected-mode no
port 7001
daemonize yes
cluster-enabled yes
```

3.复制7001实例至7002~7006实例，并修改对应redis.conf端口号

```
cp -r 7001 7002
cp -r 7001 7003
cp -r 7001 7004
cp -r 7001 7005
cp -r 7001 7006
```

4.创建start.sh, 启动所有实例

```
vim start.sh

cd 7001/bin
./redis-server redis.conf
cd ../../7002/bin
./redis-server redis.conf
cd ../../7003/bin
./redis-server redis.conf
```

```
cd ../../7004/bin
./redis-server redis.conf
cd ../../7005/bin
./redis-server redis.conf
cd ../../7006/bin
./redis-server redis.conf
```

```
#赋写和执行的权限
chmod u+x start.sh
#启动
./start.sh
```

```
[root@xmjmaster redis-cluster]# ./start.sh
119104:C 02 Aug 2020 18:18:47.591 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
119104:C 02 Aug 2020 18:18:47.591 # Redis version=5.0.5, bits=64, commit=00000000, modified=0, pid=119104, just started
119104:C 02 Aug 2020 18:18:47.591 # Configuration loaded
119106:C 02 Aug 2020 18:18:47.600 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
119106:C 02 Aug 2020 18:18:47.600 # Redis version=5.0.5, bits=64, commit=00000000, modified=0, pid=119106, just started
119106:C 02 Aug 2020 18:18:47.600 # Configuration loaded
119108:C 02 Aug 2020 18:18:47.607 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
119108:C 02 Aug 2020 18:18:47.607 # Redis version=5.0.5, bits=64, commit=00000000, modified=0, pid=119108, just started
119108:C 02 Aug 2020 18:18:47.607 # Configuration loaded
119110:C 02 Aug 2020 18:18:47.615 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
119110:C 02 Aug 2020 18:18:47.615 # Redis version=5.0.5, bits=64, commit=00000000, modified=0, pid=119110, just started
119110:C 02 Aug 2020 18:18:47.615 # Configuration loaded
119112:C 02 Aug 2020 18:18:47.622 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
119112:C 02 Aug 2020 18:18:47.622 # Redis version=5.0.5, bits=64, commit=00000000, modified=0, pid=119112, just started
119112:C 02 Aug 2020 18:18:47.622 # Configuration loaded
119114:C 02 Aug 2020 18:18:47.633 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
119114:C 02 Aug 2020 18:18:47.633 # Redis version=5.0.5, bits=64, commit=00000000, modified=0, pid=119114, just started
119114:C 02 Aug 2020 18:18:47.633 # Configuration loaded
[root@xmjmaster redis-cluster]# ps -ef|grep redis
root     119105      1  0 18:18 ?        00:00:00 ./redis-server *:7001 [cluster]
root     119107      1  0 18:18 ?        00:00:00 ./redis-server *:7002 [cluster]
root     119109      1  0 18:18 ?        00:00:00 ./redis-server *:7003 [cluster]
root     119111      1  0 18:18 ?        00:00:00 ./redis-server *:7004 [cluster]
root     119113      1  0 18:18 ?        00:00:00 ./redis-server *:7005 [cluster]
root     119115      1  0 18:18 ?        00:00:00 ./redis-server *:7006 [cluster]
root     119139 112905  0 18:18 pts/1    00:00:00 grep --color=auto redis
```

5.创建redis集群

```
cd 7001/bin

./redis-cli --cluster create 192.168.238.160:7001 192.168.238.160:7002
192.168.238.160:7003 192.168.238.160:7004 192.168.238.160:7005
192.168.238.160:7006 --cluster-replicas 1
```

```
M: 691b03cdecc529a322d66e9c706879dee5ee37ea 192.168.238.160:7003
   slots:[10923-16383] (5461 slots) master
S: b2a7564f1438a23b51e7e6fc7bc0d3ee595de65d 192.168.238.160:7004
   replicates df7995a47f8e683f6f1faf27fb4119b5f13b2b87
S: 00d38bb8e68993ad244ec0e346fe643e7f8bcf23 192.168.238.160:7005
   replicates 691b03cdecc529a322d66e9c706879dee5ee37ea
S: 01afe1b95ed832303df8db24aa3f9f6c35ba1a44 192.168.238.160:7006
   replicates beb3e91d88572a6c7c404f3f877b5f1cfe62950b
Can I set the above configuration? (type 'yes' to accept): yes
>>> Nodes configuration updated
>>> Assign a different config epoch to each node
>>> Sending CLUSTER MEET messages to join the cluster
Waiting for the cluster to join
....
>>> Performing Cluster Check (using node 192.168.238.160:7001)
M: beb3e91d88572a6c7c404f3f877b5f1cfe62950b 192.168.238.160:7001
   slots:[0-5460] (5461 slots) master
   1 additional replica(s)
S: 01afe1b95ed832303df8db24aa3f9f6c35ba1a44 192.168.238.160:7006
   slots: (0 slots) slave
   replicates beb3e91d88572a6c7c404f3f877b5f1cfe62950b
S: b2a7564f1438a23b51e7e6fc7bc0d3ee595de65d 192.168.238.160:7004
   slots: (0 slots) slave
   replicates df7995a47f8e683f6f1faf27fb4119b5f13b2b87
M: 691b03cdecc529a322d66e9c706879dee5ee37ea 192.168.238.160:7003
   slots:[10923-16383] (5461 slots) master
   1 additional replica(s)
M: df7995a47f8e683f6f1faf27fb4119b5f13b2b87 192.168.238.160:7002
   slots:[5461-10922] (5462 slots) master
   1 additional replica(s)
S: 00d38bb8e68993ad244ec0e346fe643e7f8bcf23 192.168.238.160:7005
   slots: (0 slots) slave
   replicates 691b03cdecc529a322d66e9c706879dee5ee37ea
[OK] All nodes agree about slots configuration.
>>> Check for open slots...
>>> Check slots coverage...
[OK] All 16384 slots covered.
```

```
[root@xmjmaster bin]# cat nodes.conf
01afe1b95ed832303df8db24aa3f9f6c35ba1a44 192.168.238.160:7006@17006 slave beb3e91d88572a6c7c404f3f877b5f1cfe62950b 0 1596363864219 6 connected
b2a7564f1438a23b51e7e6fc7bc0d3ee595de65d 192.168.238.160:7004@17004 slave df7995a47f8e683f6f1faf27fb4119b5f13b2b87 0 1596363865242 4 connected
691b03cdecc529a322d66e9c706879dee5ee37ea 192.168.238.160:7003@17003 master - 0 1596363863000 3 connected 10923-16383
beb3e91d88572a6c7c404f3f877b5f1cfe62950b 192.168.238.160:7001@17001 myself,master - 0 1596363862000 1 connected 0-5460
df7995a47f8e683f6f1faf27fb4119b5f13b2b87 192.168.238.160:7002@17002 master - 0 1596363863195 2 connected 5461-10922
00d38bb8e68993ad244ec0e346fe643e7f8bcf23 192.168.238.160:7005@17005 slave 691b03cdecc529a322d66e9c706879dee5ee37ea 0 1596363862000 5 connected
vars currentEpoch 6 lastVoteEpoch 0
[root@xmjmaster bin]# cat ../../7002/bin/nodes.conf
df7995a47f8e683f6f1faf27fb4119b5f13b2b87 192.168.238.160:7002@17002 myself,master - 0 1596363859000 2 connected 5461-10922
00d38bb8e68993ad244ec0e346fe643e7f8bcf23 192.168.238.160:7005@17005 slave 691b03cdecc529a322d66e9c706879dee5ee37ea 1596363862269 1596363858000 5 connected
691b03cdecc529a322d66e9c706879dee5ee37ea 192.168.238.160:7003@17003 master - 0 1596363861250 3 connected 10923-16383
beb3e91d88572a6c7c404f3f877b5f1cfe62950b 192.168.238.160:7001@17001 master - 0 1596363860000 1 connected 0-5460
b2a7564f1438a23b51e7e6fc7bc0d3ee595de65d 192.168.238.160:7004@17004 slave df7995a47f8e683f6f1faf27fb4119b5f13b2b87 0 1596363861000 4 connected
01afe1b95ed832303df8db24aa3f9f6c35ba1a44 192.168.238.160:7006@17006 slave beb3e91d88572a6c7c404f3f877b5f1cfe62950b 0 1596363861000 6 connected
vars currentEpoch 6 lastVoteEpoch 0
[root@xmjmaster bin]#
```

6.客户端连接集群

```
./redis-cli -h 127.0.0.1 -p 7001 -c
```

```
[root@xmjmaster bin]# ./redis-cli -h 127.0.0.1 -p 7001 -c
127.0.0.1:7001> set name:001 xmj
OK
127.0.0.1:7001> set name:002 xmj
-> Redirected to slot [8545] located at 192.168.238.160:7002
OK
192.168.238.160:7002> get name:001
-> Redirected to slot [4354] located at 192.168.238.160:7001
"xmj"
192.168.238.160:7001> get name:002
-> Redirected to slot [8545] located at 192.168.238.160:7002
"xmj"
192.168.238.160:7002>
```

```
#查看集群状态
192.168.238.160:7002> cluster info
```

```
192.168.238.160:7002> cluster info
cluster_state:ok
cluster_slots_assigned:16384
cluster_slots_ok:16384
cluster_slots_pfail:0
cluster_slots_fail:0
cluster_known_nodes:6
cluster_size:3
cluster_current_epoch:6
cluster_my_epoch:2
cluster_stats_messages_ping_sent:480
cluster_stats_messages_pong_sent:474
cluster_stats_messages_meet_sent:3
cluster_stats_messages_sent:957
cluster_stats_messages_ping_received:472
cluster_stats_messages_pong_received:483
cluster_stats_messages_meet_received:2
cluster_stats_messages_received:957
192.168.238.160:7002>
```

三、扩容

1.创建7007节点，并修改配置redis.conf

```
cd /usr/local/redis/redis-cluster/
mkdir 7007
cd redis-5.0.5/src/
make install PREFIX=/usr/local/redis/redis-cluster/7007
```

```
cp /usr/local/redis/redis-cluster/redis-5.0.5/redis.conf /usr/local/redis/redis-cluster/7007/bin/
cd ../../7007/bin/
```

```
vim redis.conf

#bind 127.0.0.1
protected-mode no
port 7007
daemonize yes
cluster-enabled yes
```

2.复制7007节点至7008节点并修改redis.conf端口号

```
cp -r 7007 7008
```

3.添加7007节点作为新节点,并启动

```
cd ../../7007/bin/
./redis-server redis.conf
```

```
cd ../../7001/bin/
./redis-cli --cluster add-node 192.168.238.160:7007 192.168.238.160:7001
```

```
[root@xmjmaster bin]# cd ../../7007/bin/
[root@xmjmaster bin]# ./redis-server redis.conf
121221:C 02 Aug 2020 18:50:09.763 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
121221:C 02 Aug 2020 18:50:09.763 # Redis version=5.0.5, bits=64, commit=00000000, modified=0, pid=121221, just started
121221:C 02 Aug 2020 18:50:09.763 # Configuration loaded
[root@xmjmaster bin]# ps -ef|grep redis
root     119105      1  0 18:18 ?        00:00:02 ./redis-server *:7001 [cluster]
root     119107      1  0 18:18 ?        00:00:02 ./redis-server *:7002 [cluster]
root     119109      1  0 18:18 ?        00:00:02 ./redis-server *:7003 [cluster]
root     119111      1  0 18:18 ?        00:00:02 ./redis-server *:7004 [cluster]
root     119113      1  0 18:18 ?        00:00:02 ./redis-server *:7005 [cluster]
root     119115      1  0 18:18 ?        00:00:02 ./redis-server *:7006 [cluster]
root     121222      1  0 18:50 ?        00:00:00 ./redis-server *:7007 [cluster]
root     121230 112905  0 18:50 pts/1    00:00:00 grep --color=auto redis
```

```
[root@xmjmaster bin]# cd ../../7001/bin/
[root@xmjmaster bin]# ./redis-cli --cluster add-node 192.168.238.160:7007 192.168.238.160:7001
>>> Adding node 192.168.238.160:7007 to cluster 192.168.238.160:7001
>>> Performing Cluster Check (using node 192.168.238.160:7001)
M: beb3e91d88572a6c7c404f3f877b5f1cfe62950b 192.168.238.160:7001
   slots:[0-5460] (5461 slots) master
   1 additional replica(s)
S: 01afe1b95ed832303df8db24aa3f9f6c35ba1a44 192.168.238.160:7006
   slots: (0 slots) slave
   replicates beb3e91d88572a6c7c404f3f877b5f1cfe62950b
S: b2a7564f1438a23b51e7e6fc7bc0d3ee595de65d 192.168.238.160:7004
   slots: (0 slots) slave
   replicates df7995a47f8e683f6f1faf27fb4119b5f13b2b87
M: 691b03cdecc529a322d66e9c706879dee5ee37ea 192.168.238.160:7003
   slots:[10923-16383] (5461 slots) master
   1 additional replica(s)
M: df7995a47f8e683f6f1faf27fb4119b5f13b2b87 192.168.238.160:7002
   slots:[5461-10922] (5462 slots) master
   1 additional replica(s)
S: 00d38bb8e68993ad244ec0e346fe643e7f8bcf23 192.168.238.160:7005
   slots: (0 slots) slave
   replicates 691b03cdecc529a322d66e9c706879dee5ee37ea
[OK] All nodes agree about slots configuration.
>>> Check for open slots...
>>> Check slots coverage...
[OK] All 16384 slots covered.
>>> Send CLUSTER MEET to node 192.168.238.160:7007 to make it join the cluster.
[OK] New node added correctly.
```

4.查看集群节点

```
./redis-cli -p 7001 -c
cluster nodes
```

```
[root@xmjmaster bin]# ./redis-cli -p 7001 -c
127.0.0.1:7001> cluster nodes
01afe1b95ed832303df8db24aa3f9f6c35ba1a44 192.168.238.160:7006@17006 slave beb3e91d88572a6c7c404f3f877b5f1cfe62950b 0 1596365577600 6 connected
b2a7564f1438a23b51e7e6fc7bc0d3ee595de65d 192.168.238.160:7004@17004 slave df7995a47f8e683f6f1faf27fb4119b5f13b2b87 0 1596365575553 4 connected
691b03cdecc529a322d66e9c706879dee5ee37ea 192.168.238.160:7003@17003 master - 0 1596365575000 3 connected 10923-16383
beb3e91d88572a6c7c404f3f877b5f1cfe62950b 192.168.238.160:7001@17001 myself,master - 0 1596365575000 1 connected 0-5460
a1e88a5c1193fb690e874d8b2b808035761f45dd 192.168.238.160:7007@17007 master - 0 1596365576000 0 connected
df7995a47f8e683f6f1faf27fb4119b5f13b2b87 192.168.238.160:7002@17002 master - 0 1596365576576 2 connected 5461-10922
00d38bb8e68993ad244ec0e346fe643e7f8bcf23 192.168.238.160:7005@17005 slave 691b03cdecc529a322d66e9c706879dee5ee37ea 0 1596365573515 5 connected
127.0.0.1:7001>
```

5.给7007结点分配槽

```
./redis-cli --cluster reshard 192.168.238.160:7007
```

```
127.0.0.1:7001> cluster nodes
01afe1b95ed832303df8db24aa3f9f6c35ba1a44 192.168.238.160:7006@17006 slave beb3e91d88572a6c7c404f3f877b5f1cfe62950b 0 1596365892000 6 connected
b2a7564f1438a23b51e7e6fc7bc0d3ee595de65d 192.168.238.160:7004@17004 slave df7995a47f8e683f6f1faf27fb4119b5f13b2b87 0 1596365891000 4 connected
691b03cdecc529a322d66e9c706879dee5ee37ea 192.168.238.160:7003@17003 master - 0 1596365892000 3 connected 11922-16383
beb3e91d88572a6c7c404f3f877b5f1cfe62950b 192.168.238.160:7001@17001 myself,master - 0 1596365891000 1 connected 999-5460
a1e88a5c1193fb690e874d8b2b808035761f45dd 192.168.238.160:7007@17007 master - 0 1596365891205 7 connected 0-998 5461-6461 10923-11921
df7995a47f8e683f6f1faf27fb4119b5f13b2b87 192.168.238.160:7002@17002 master - 0 1596365892220 2 connected 6462-10922
00d38bb8e68993ad244ec0e346fe643e7f8bcf23 192.168.238.160:7005@17005 slave 691b03cdecc529a322d66e9c706879dee5ee37ea 0 1596365893244 5 connected
127.0.0.1:7001>
```

6.添加7008从节点，将7008作为7007的从节点

```
cd ../../7008/bin
./redis-server redis.conf
```

```
cd ../../7001/bin
./redis-cli --cluster add-node 192.168.238.160:7008 192.168.238.160:7007 --
cluster-slave --cluster-master-id a1e88a5c1193fb690e874d8b2b808035761f45dd
```

```
[root@xmjmaster bin]# ./redis-server redis.conf
121856:C 02 Aug 2020 19:00:51.143 # oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
121856:C 02 Aug 2020 19:00:51.144 # Redis version=5.0.5, bits=64, commit=00000000, modified=0, pid=121856, just started
121856:C 02 Aug 2020 19:00:51.144 # Configuration loaded
[root@xmjmaster bin]# ps -ef|grep redis
root     119105      1  0 18:18 ?        00:00:05 ./redis-server *:7001 [cluster]
root     119107      1  0 18:18 ?        00:00:05 ./redis-server *:7002 [cluster]
root     119109      1  0 18:18 ?        00:00:05 ./redis-server *:7003 [cluster]
root     119111      1  0 18:18 ?        00:00:03 ./redis-server *:7004 [cluster]
root     119113      1  0 18:18 ?        00:00:03 ./redis-server *:7005 [cluster]
root     119115      1  0 18:18 ?        00:00:03 ./redis-server *:7006 [cluster]
root     121222      1  0 18:50 ?        00:00:04 ./redis-server *:7007 [cluster]
root     121857      1  0 19:00 ?        00:00:00 ./redis-server *:7008 [cluster]
root     121866 112905  0 19:00 pts/1    00:00:00 grep --color=auto redis
```

```
[root@xmjmaster bin]# ./redis-cli --cluster add-node 192.168.238.160:7008 192.168.238.160:7007 --cluster-slave --cluster-master-id a1e88a5c1193fb690e874d8b2b808035761f45dd
>>> Adding node 192.168.238.160:7008 to cluster 192.168.238.160:7007
>>> Performing Cluster Check (using node 192.168.238.160:7007)
M: a1e88a5c1193fb690e874d8b2b808035761f45dd 192.168.238.160:7007
   slots:[0-998],[5461-6461],[10923-11921] (2999 slots) master
M: 691b03cdecc529a322d66e9c706879dee5ee37ea 192.168.238.160:7003
   slots:[11922-16383] (4462 slots) master
   1 additional replica(s)
S: b2a7564f1438a23b51e7e6fc7bc0d3ee595de65d 192.168.238.160:7004
   slots: (0 slots) slave
   replicates df7995a47f8e683f6f1faf27fb4119b5f13b2b87
S: 01afe1b95ed832303df8db24aa3f9f6c35ba1a44 192.168.238.160:7006
   slots: (0 slots) slave
   replicates beb3e91d88572a6c7c404f3f877b5f1cfe62950b
S: 00d38bb8e68993ad244ec0e346fe643e7f8bcf23 192.168.238.160:7005
   slots: (0 slots) slave
   replicates 691b03cdecc529a322d66e9c706879dee5ee37ea
M: df7995a47f8e683f6f1faf27fb4119b5f13b2b87 192.168.238.160:7002
   slots:[6462-10922] (4461 slots) master
   1 additional replica(s)
M: beb3e91d88572a6c7c404f3f877b5f1cfe62950b 192.168.238.160:7001
   slots:[999-5460] (4462 slots) master
   1 additional replica(s)
[OK] All nodes agree about slots configuration.
>>> Check for open slots...
>>> Check slots coverage...
[OK] All 16384 slots covered.
>>> Send CLUSTER MEET to node 192.168.238.160:7008 to make it join the cluster.
Waiting for the cluster to join

>>> Configure node as replica of 192.168.238.160:7007.
[OK] New node added correctly.
```

```
./redis-cli -p 7001 -c
cluster nodes
```

```
[root@xmjmaster bin]# ./redis-cli -p 7001 -c
127.0.0.1:7001> cluster nodes
01afe1b95ed832303df8db24aa3f9f6c35ba1a44 192.168.238.160:7006@17006 slave beb3e91d88572a6c7c404f3f877b5f1cfe62950b 0 1596366274351 6 connected
b2a7564f1438a23b51e7e6fc7bc0d3ee595de65d 192.168.238.160:7004@17004 slave df7995a47f8e683f6f1faf27fb4119b5f13b2b87 0 1596366272338 4 connected
a16c820546a6e79d52e9a9a2a4ad94279ed4be3e 192.168.238.160:7008@17008 slave a1e88a5c1193fb690e874d8b2b808035761f45dd 0 1596366270318 7 connected
691b03cdecc529a322d66e9c706879dee5ee37ea 192.168.238.160:7003@17003 master - 0 1596366271330 3 connected 11922-16383
beb3e91d88572a6c7c404f3f877b5f1cfe62950b 192.168.238.160:7001@17001 myself,master - 0 1596366271000 1 connected 999-5460
a1e88a5c1193fb690e874d8b2b808035761f45dd 192.168.238.160:7007@17007 master - 0 1596366273000 7 connected 0-998 5461-6461 10923-11921
df7995a47f8e683f6f1faf27fb4119b5f13b2b87 192.168.238.160:7002@17002 master - 0 1596366271000 2 connected 6462-10922
00d38bb8e68993ad244ec0e346fe643e7f8bcf23 192.168.238.160:7005@17005 slave 691b03cdecc529a322d66e9c706879dee5ee37ea 0 1596366273343 5 connected
```