HBase集群安装

2020年3月30日 星期一
19:25

正文

前提

1、HBase 依赖于 HDFS 做底层的数据存储

2、HBase 依赖于 MapReduce 做数据计算

3、HBase 依赖于 ZooKeeper 做服务协调

4、HBase源码是java编写的，安装需要依赖JDK

版本选择

hadoop版本用的的是2.7.5，HBase选择的版本是1.2.6

安装

1、zookeeper的安装

参考http://www.cnblogs.com/qingyunzong/p/8619184.html

2、Hadoopd的安装

参考http://www.cnblogs.com/qingyunzong/p/8634335.html

3、下载安装包

找到官网下载 hbase 安装包 hbase-1.2.6-bin.tar.gz，这里给大家提供一个下载地址： http://mirrors.hust.edu.cn/apache/hbase/

nginx

/apache/hbase/stable/

File Name	File Size	Date
../	-	-
1.2.5_1.2.6RC0_compat_report.html	25005	20-Jun-2017 10:41
hbase-1.2.6-bin.tar.gz	104659474	20-Jun-2017 10:42
hbase-1.2.6-src.tar.gz	16054584	20-Jun-2017 10:41

4、上传服务器并解压缩到指定目录

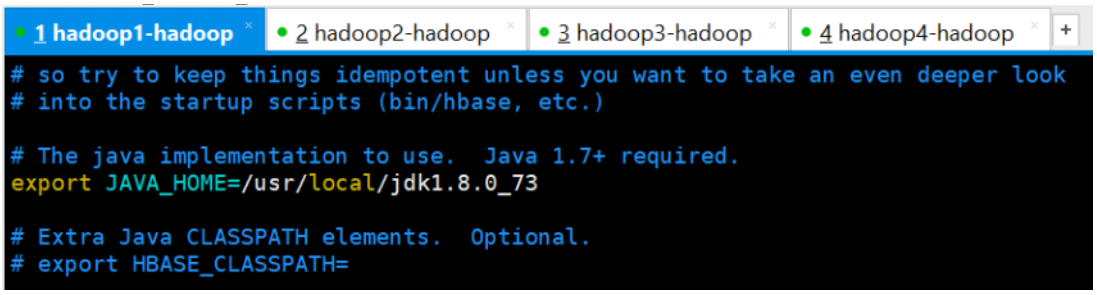
```
[hadoop@hadoop1 ~]$ ls
apps  data  hbase-1.2.6-bin.tar.gz  hello.txt  log  zookeeper.out
[hadoop@hadoop1 ~]$ tar -zxvf hbase-1.2.6-bin.tar.gz -C apps/
```

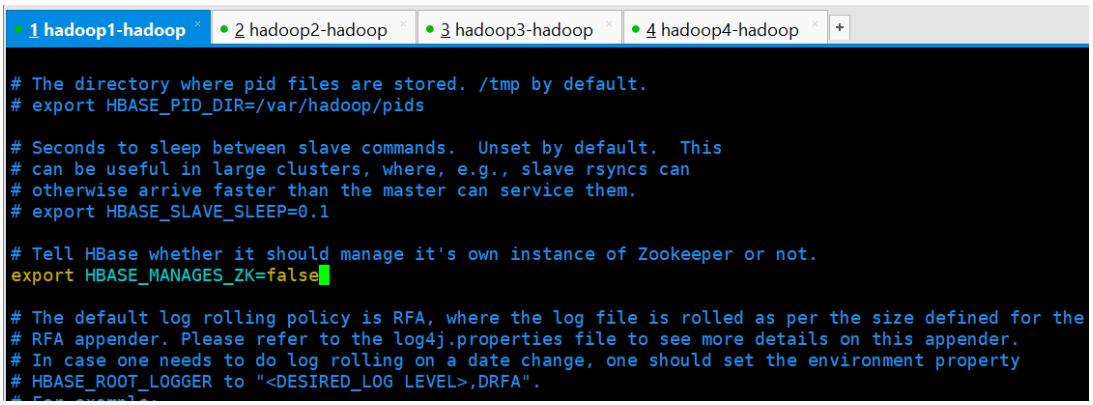
5、修改配置文件

配置文件目录在安装包的conf文件夹中

（1）修改hbase-env.sh

```
[hadoop@hadoop1 conf]$ vi hbase-env.sh
export JAVA_HOME=/usr/local/jdk1.8.0_73
export HBASE_MANAGES_ZK=false
```





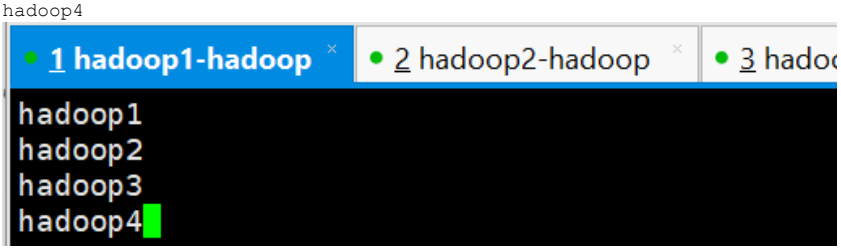
（2）修改hbase-site.xml

```
[hadoop@hadoop1 conf]$ vi hbase-site.xml

<configuration>
        <property>
             <!-- 指定 hbase 在 HDFS 上存储的路径 -->
             <name>hbase.rootdir</name>
             <value>hdfs://myha01/hbase126</value>
        </property>
        <property>
                <!-- 指定 hbase 是分布式的 -->
                <name>hbase.cluster.distributed</name>
                <value>true</value>
        </property>
        <property>
                <!-- 指定 zk 的地址，多个用“,”分割 -->
                <name>hbase.zookeeper.quorum</name>
                <value>hadoop1:2181,hadoop2:2181,hadoop3:2181,hadoop4:2181</value>
        </property>
</configuration>
```

（3）修改regionservers

```
[hadoop@hadoop1 conf]$ vi regionservers
hadoop1
hadoop2
hadoop3
hadoop4
```



（4）修改backup-masters

该文件是不存在的，先自行创建

```
[hadoop@hadoop1 conf]$ vi backup-masters hadoop4
```

（5）修改hdfs-site.xml 和 core-site.xml

最重要一步，要把 hadoop 的 hdfs-site.xml 和 core-site.xml 放到 hbase-1.2.6/conf 下

```
[hadoop@hadoop1 conf]$ cd ~/apps/hadoop-2.7.5/etc/hadoop/
[hadoop@hadoop1 hadoop]$ cp core-site.xml hdfs-site.xml ~/apps/hbase-1.2.6/conf/
```

6、将HBase安装包分发到其他节点

分发之前先删除HBase目录下的docs文件夹，

```
[hadoop@hadoop1 hbase-1.2.6]$ rm -rf docs/
```

在进行分发

```
[hadoop@hadoop1 apps]$ scp -r hbase-1.2.6/ hadoop2:$PWD
[hadoop@hadoop1 apps]$ scp -r hbase-1.2.6/ hadoop3:$PWD
[hadoop@hadoop1 apps]$ scp -r hbase-1.2.6/ hadoop4:$PWD
```

7、 同步时间

HBase 集群对于时间的同步要求的比 HDFS 严格，所以，集群启动之前千万记住要进行 时间同步，要求相差不要超过 30s

8、配置环境变量

所有服务器都有进行配置

```
[hadoop@hadoop1 apps]$ vi ~/.bashrc
#HBase
export HBASE_HOME=/home/hadoop/apps/hbase-1.2.6
export PATH=$PATH:$HBASE_HOME/bin
```

使环境变量立即生效

```
[hadoop@hadoop1 apps]$ source ~/.bashrc
```

启动HBase集群

严格按照启动顺序进行

1、启动zookeeper集群

每个zookeeper节点都要执行以下命令

```
[hadoop@hadoop1 apps]$ zkServer.sh start
ZooKeeper JMX enabled by default
Using config: /home/hadoop/apps/zookeeper-3.4.10/bin/../conf/zoo.cfg
Starting zookeeper ... STARTED
[hadoop@hadoop1 apps]$
```

2、启动HDFS集群及YARN集群

如果需要运行MapReduce程序则启动yarn集群，否则不需要启动

```
[hadoop@hadoop1 apps]$ start-dfs.sh
Starting namenodes on [hadoop1 hadoop2]
hadoop2: starting namenode, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-namenode-hadoop2.out
hadoop1: starting namenode, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-namenode-hadoop1.out
hadoop3: starting datanode, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-datanode-hadoop3.out
hadoop4: starting datanode, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-datanode-hadoop4.out
hadoop2: starting datanode, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-datanode-hadoop2.out
hadoop1: starting datanode, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-datanode-hadoop1.out
Starting journal nodes [hadoop1 hadoop2 hadoop3]
hadoop3: starting journalnode, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-journalnode-hadoop3.out
hadoop2: starting journalnode, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-journalnode-hadoop2.out
hadoop1: starting journalnode, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-journalnode-hadoop1.out
Starting ZK Failover Controllers on NN hosts [hadoop1 hadoop2]
hadoop2: starting zkfc, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-zkfc-hadoop2.out
hadoop1: starting zkfc, logging to /home/hadoop/apps/hadoop-2.7.5/logs/hadoop-hadoop-zkfc-hadoop1.out
[hadoop@hadoop1 apps]$
```

启动完成之后检查以下namenode的状态

```
[hadoop@hadoop1 apps]$ hdfs haadmin -getServiceState nn1
standby
[hadoop@hadoop1 apps]$ hdfs haadmin -getServiceState nn2
active
[hadoop@hadoop1 apps]$
```

3、启动HBase

保证 ZooKeeper 集群和 HDFS 集群启动正常的情况下启动 HBase 集群 启动命令：start-hbase.sh，在哪台节点上执行此命令，哪个节点就是主节点

```
[hadoop@hadoop1 conf]$ start-hbase.sh
starting master, logging to /home/hadoop/apps/hbase-1.2.6/logs/hbase-hadoop-master-hadoop1.out
Java HotSpot(TM) 64-Bit Server VM warning: ignoring option PermSize=128m; support was removed in 8.0
Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=128m; support was removed in 8.0
hadoop3: starting regionserver, logging to /home/hadoop/apps/hbase-1.2.6/logs/hbase-hadoop-regionserver-hadoop3.out
hadoop4: starting regionserver, logging to /home/hadoop/apps/hbase-1.2.6/logs/hbase-hadoop-regionserver-hadoop4.out
hadoop2: starting regionserver, logging to /home/hadoop/apps/hbase-1.2.6/logs/hbase-hadoop-regionserver-hadoop2.out
hadoop3: Java HotSpot(TM) 64-Bit Server VM warning: ignoring option PermSize=128m; support was removed in 8.0
hadoop3: Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=128m; support was removed in 8.0
hadoop4: Java HotSpot(TM) 64-Bit Server VM warning: ignoring option PermSize=128m; support was removed in 8.0
hadoop4: Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=128m; support was removed in 8.0
hadoop2: Java HotSpot(TM) 64-Bit Server VM warning: ignoring option PermSize=128m; support was removed in 8.0
hadoop2: Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=128m; support was removed in 8.0
hadoop1: starting regionserver, logging to /home/hadoop/apps/hbase-1.2.6/logs/hbase-hadoop-regionserver-hadoop1.out
hadoop4: starting master, logging to /home/hadoop/apps/hbase-1.2.6/logs/hbase-hadoop-master-hadoop4.out
[hadoop@hadoop1 conf]$
```

观看启动日志可以看到：

（1）首先在命令执行节点启动 master

（2）然后分别在 hadoop02,hadoop03,hadoop04,hadoop05 启动 regionserver

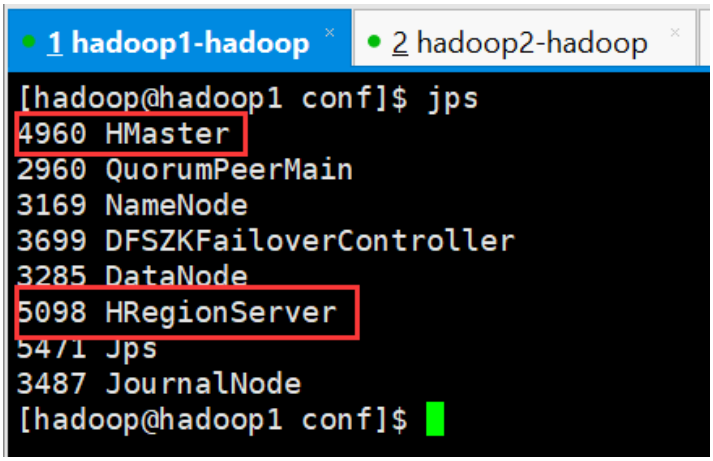
（3）然后在 backup-masters 文件中配置的备节点上再启动一个 master 主进程

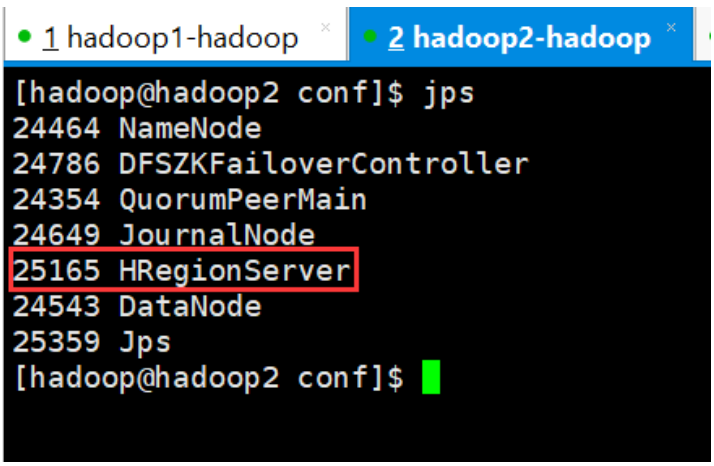
验证启动是否正常

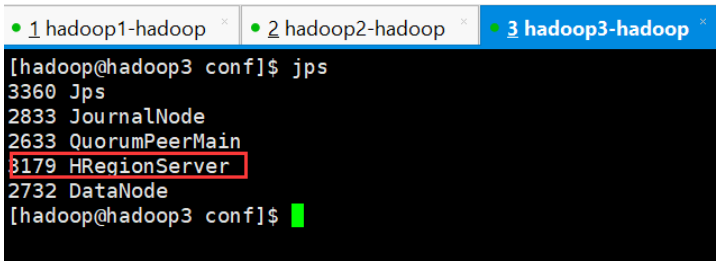
1、检查各进程是否启动正常

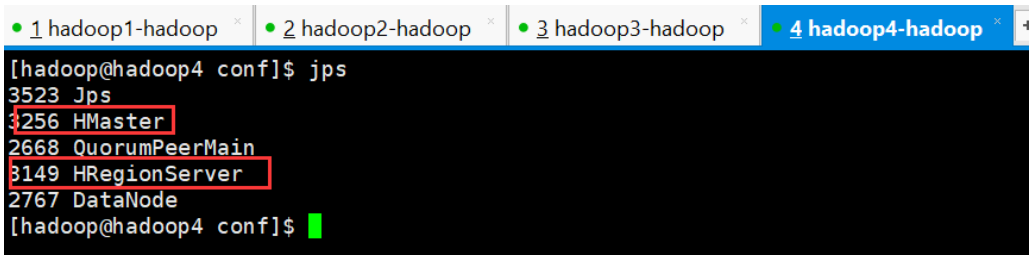
主节点和备用节点都启动 hmaster 进程

各从节点都启动 hregionserver 进程





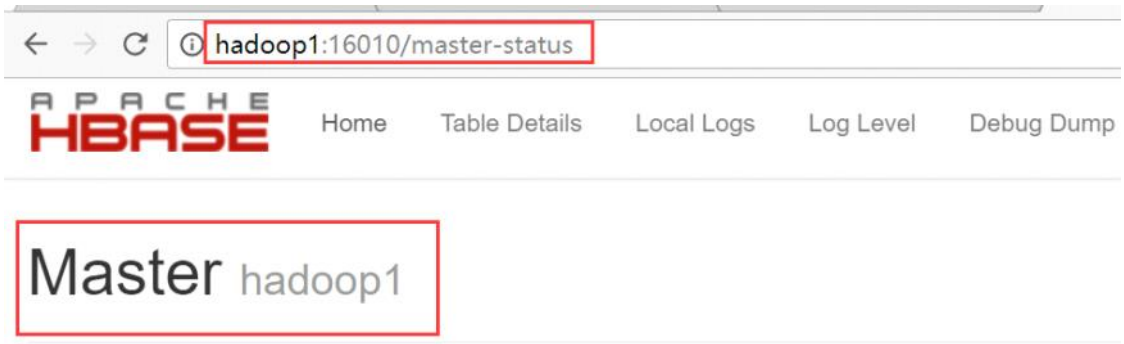




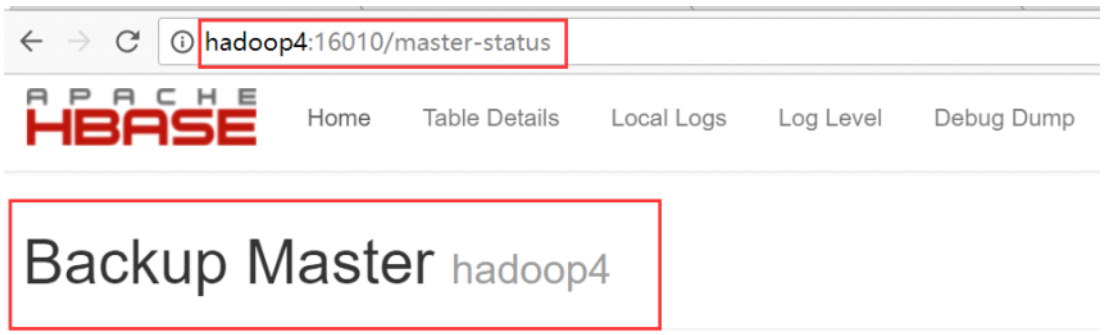
按照对应的配置信息各个节点应该要启动的进程如上图所示

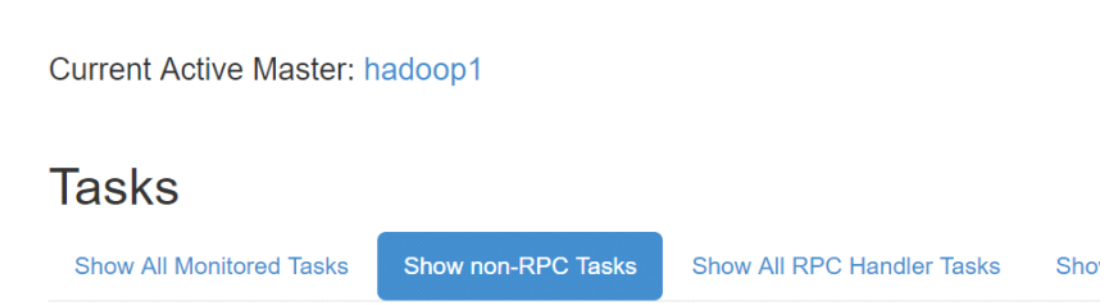
2、通过访问浏览器页面

hadoop1



hadop4





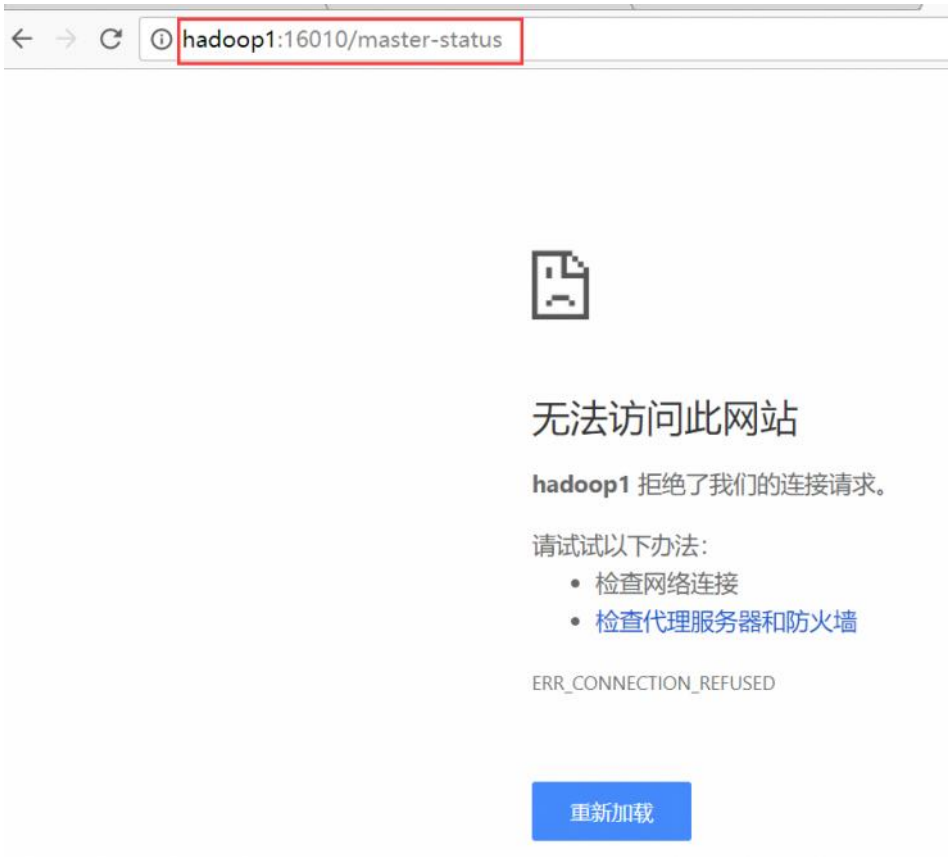
从图中可以看出hadoop4是备用节点

3、验证高可用

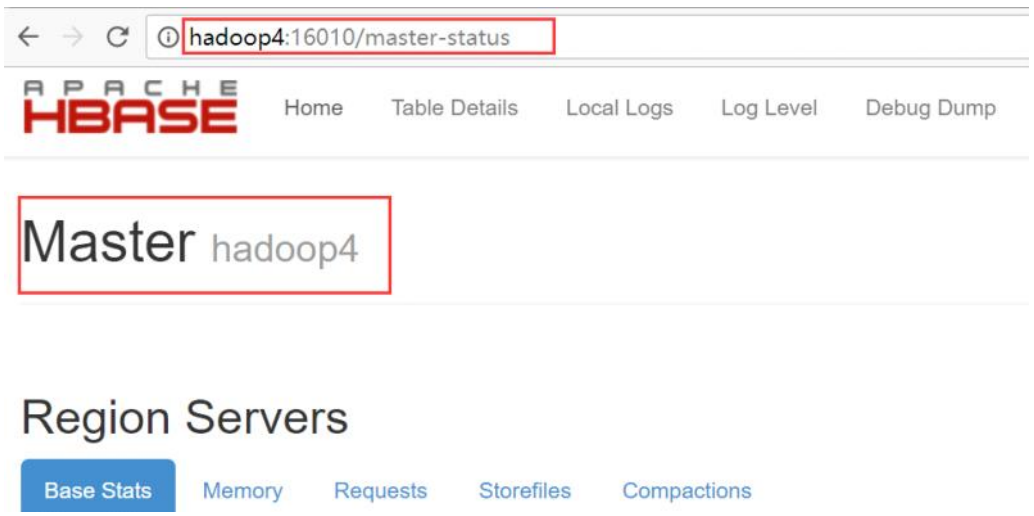
干掉hadoop1上的hbase进程，观察备用节点是否启用

```
[hadoop@hadoop1 conf]$ jps
4960 HMaster
2960 QuorumPeerMain
3169 NameNode
3699 DFSZKFailoverController
3285 DataNode
5098 HRegionServer
5471 Jps
3487 JournalNode
[hadoop@hadoop1 conf]$ kill -9 4960
```

hadoop1界面访问不了



hadoop4变成主节点



4、如果有节点相应的进程没有启动，那么可以手动启动

启动HMaster进程

```
[hadoop@hadoop3 conf]$ jps
3360 Jps
2833 JournalNode
2633 QuorumPeerMain
3179 HRegionServer
2732 DataNode
[hadoop@hadoop3 conf]$ hbase-daemon.sh start master
starting master, logging to /home/hadoop/apps/hbase-1.2.6/logs/hbase-hadoop-master-hadoop3.out
Java HotSpot(TM) 64-Bit Server VM warning: ignoring option PermSize=128m; support was removed in 8.0
Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=128m; support was removed in 8.0
[hadoop@hadoop3 conf]$ jps
2833 JournalNode
3510 Jps
3432 HMaster
2633 QuorumPeerMain
3179 HRegionServer
2732 DataNode
[hadoop@hadoop3 conf]$
```

启动HRegionServer进程

```
[hadoop@hadoop3 conf]$ hbase-daemon.sh start regionserver
```