安装hadoop前的准备工作

1. 停止防火墙并且关闭开机自启动

```
systemctl stop firewalld

systemctl disable firewalld
```

```
Last login: Tue Mar  7 09:12:29 2023 from 10.39.2.103
[root@localhost ~]# systemctl stop firewalld
[root@localhost ~]# systemctl disable firewalld
[root@localhost ~]#
```

2. 关闭selinux

输入`vim /etc/selinux/config`

修改内容

```
# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#     enforcing - SELinux security policy is enforced.
#     permissive - SELinux prints warnings instead of enforcing.
#     disabled - No SELinux policy is loaded.
SELINUX=disabled
# SELINUXTYPE= can take one of three values:
#     targeted - Targeted processes are protected,
#     minimum - Modification of targeted policy. Only selected processes are protected.
#     mls - Multi Level Security protection.
SELINUXTYPE=targeted
```

3. 卸载centeros自带的jdk

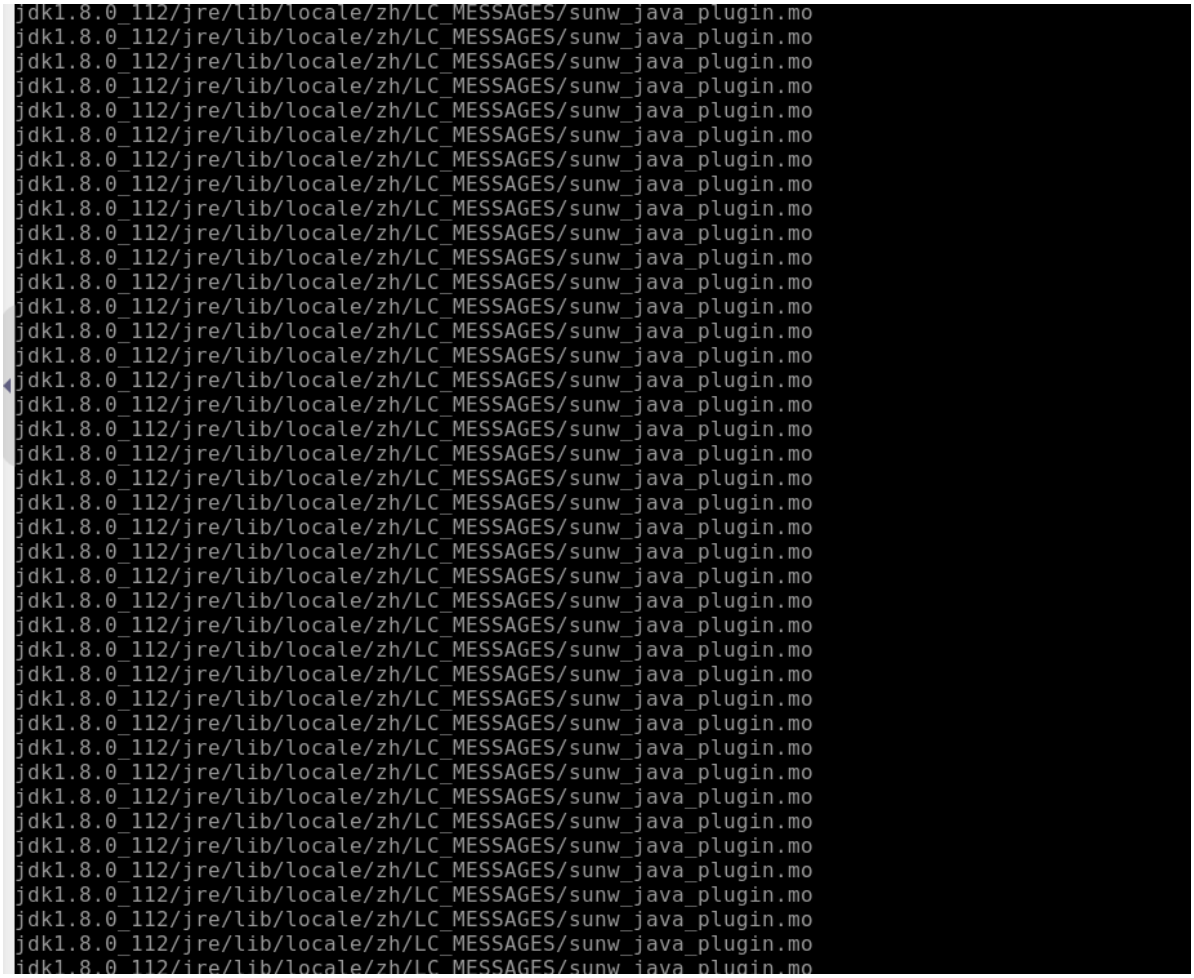
执行`rpm -qa | grep java | xargs rpm -e --nodeps`

分别在虚拟机node2、node3中重复执行以上所有命令。

4. 在node1上安装jdk1.8

解压安装包

`tar -zxvf /opt/software/jdk-8u112-linux-x64.tar.gz -C /opt/software/`



将解压文件重命名

`mv /opt/software/jdk1.8.0_112/ /opt/software/jdk`

添加环境变量

`vim /etc/profile`

```
export JAVA_HOME=/opt/software/jdk

export PATH=$PATH:$JAVA_HOME/bin
```

```
# You could check uidgid reservation validity in
# /usr/share/doc/setup-*/uidgid file
if [ $UID -gt 199 ] && [ "`/usr/bin/id -gn`" = "`/usr/bin/id -un`"
    umask 002
else
    umask 022
fi

for i in /etc/profile.d/*.sh /etc/profile.d/sh.local ; do
    if [ -r "$i" ]; then
        if [ "${-#*i}" != "$-" ]; then
            . "$i"
        else
            . "$i" >/dev/null
        fi
    fi
done

unset i
unset -f pathmunge

export JAVA_HOME=/opt/software/jdk
export PATH=$PATH:$JAVA_HOME/bin
~
~
~
"/etc/profile" 79L, 1888C written
[root@localhost ~]#
```

执行命令`source /etc/profile`使环境变量生效

执行命令`java -version`验证jdk是否安装成功

```
[root@localhost ~]# source /etc/profile
[root@localhost ~]# java -version
java version "1.8.0_112"
Java(TM) SE Runtime Environment (build 1.8.0_112-b15)
Java HotSpot(TM) 64-Bit Server VM (build 25.112-b15, mixed mode)
[root@localhost ~]#
```

在虚拟机node1中执行如下命令将文件拷贝到虚拟机node2和node3中

`scp -r /opt/software/jdk node2:/opt/software/`

`scp -r /opt/software/jdk node3:/opt/software/`

`scp -r /etc/profile node2:/etc/profile`

先弹出选择,请输入 `yes`

然后会弹出,请输入密码password:

密码是:`JiuqiYishi@2022`,注意大小写!!!

密码输入无误后会开始拷贝

在虚拟机node2中执行如下命令使环境变量生效并验证是否安装成功：

`source /etc/profile`

`java -version`

操作和上面的一样

在虚拟机node3中执行如下命令添加环境变量：

输入`vim /etc/profile`并按回车，修改文件内容如下：

```
export JAVA_HOME=/opt/software/jdk

exportPATH=$PATH:$MYSQL_HOME/bin:$MYSQL_HOME/lib:$JAVA_HOME/bin
```

```
for i in /etc/profile.d/*.sh /etc/profile.d/sh.local ; do
    if [ -r "$i" ]; then
        if [ "${-#*i}" != "$-" ]; then
            . "$i"
        else
            . "$i" >/dev/null
        fi
    fi
done

unset i
unset -f pathmunge
export MYSQL_HOME=/usr/local/mysql
export JAVA_HOME=/opt/software/jdk
export PATH=$PATH:$MYSQL_HOME/bin:$MYSQL_HOME/lib:$JAVA_HOME/bin
```

添加环境变量完成后，执行如下语句使环境变量生效并验证是否安装成功：

`source /etc/profile`

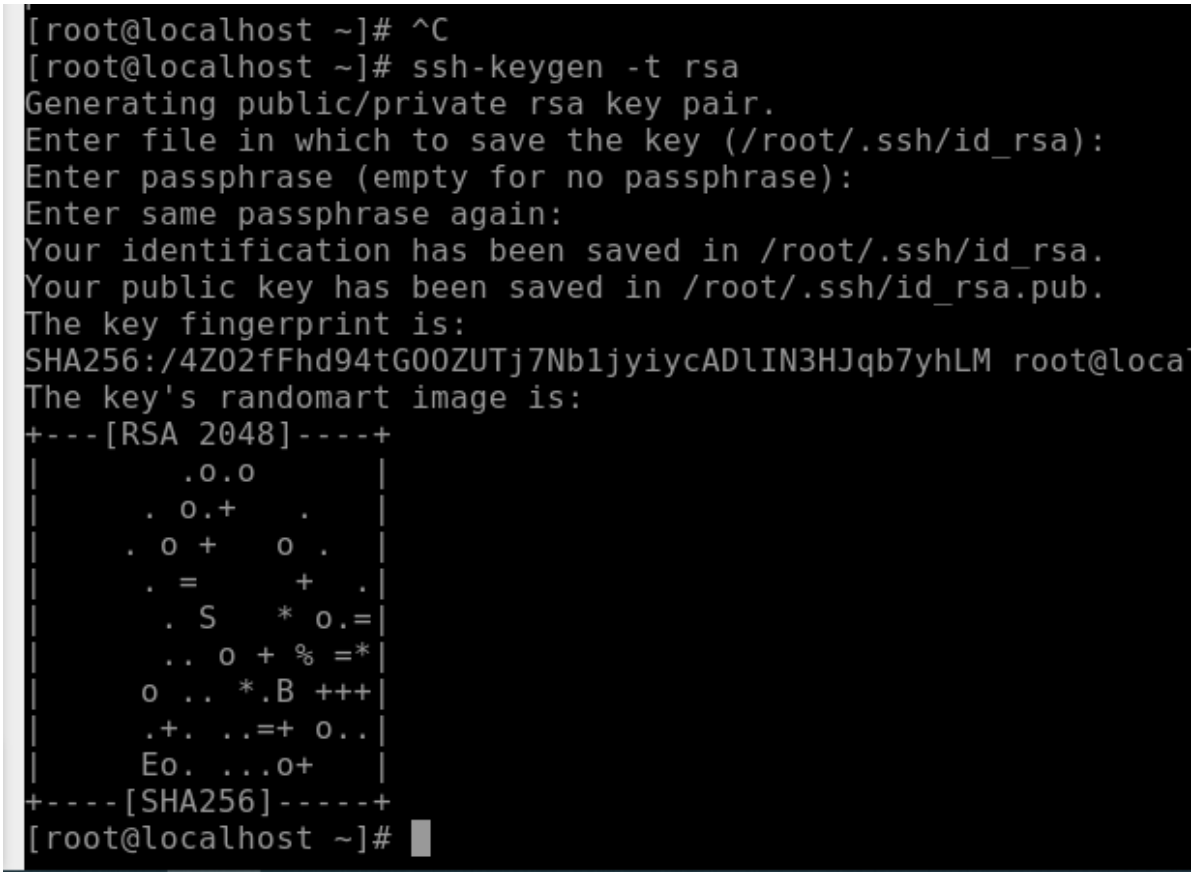
`java -version`

5. 免密码ssh设置

在虚拟机node1中执行如下命令生成密钥：

输入如下命令并一直按回车直到生成密钥如下图所示：

```
ssh-keygen -t rsa
```



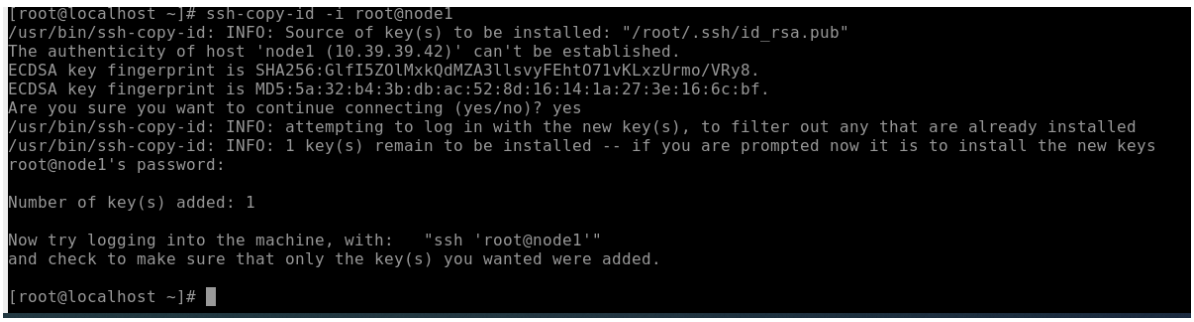
需要将预备的server的ssh-keygen拷贝到其它的虚拟机上面(执行如下命令将node1生成的密钥拷贝到node2和node3中):

注：(password:JiuqiYishi@2022)

```
ssh-copy-id -i root@node1
```

```
ssh-copy-id -i root@node2
```

```
ssh-copy-id -i root@node3
```



分别在虚拟机node2、node3中重复执行以上所有命令。

zookeeper集群的安装

1. 解压安装包

在虚拟机node1中执行如下命令：

`cd /opt/software`

执行如下命令解压安装包：

`tar -zxvf /opt/software/zookeeper-3.4.5.tar.gz -C /opt/software/`

2. 重命名

在虚拟机node1中执行如下命令：

`mv /opt/software/zookeeper-3.4.5 /opt/software/zookeeper`

3. 配置文件的配置

在虚拟机node1中执行如下命令：

```
cp /opt/software/zookeeper/conf/zoo_sample.cfg
/opt/software/zookeeper/conf/zoo.cfg
```

输入`vim /opt/software/zookeeper/conf/zoo.cfg`并按回车，修改如下：

修改dataDir和dataLogDir配置：

```
dataDir=/opt/software/zookeeper/dataDir

dataLogDir=/opt/software/zookeeper/dataLogDir
```

配置zookeeper集群：

```
server.1=node1:2888:3888

server.2=node2:2888:3888

server.3=node3:2888:3888
```

```
# The number of milliseconds of each tick
tickTime=2000
# The number of ticks that the initial
# synchronization phase can take
initLimit=10
# The number of ticks that can pass between
# sending a request and getting an acknowledgement
syncLimit=5
# the directory where the snapshot is stored.
# do not use /tmp for storage, /tmp here is just
# example sakes.
dataDir=/opt/software/zookeeper/dataDir
dataLogDir=/opt/software/zookeeper/dataLogDir
# the port at which the clients will connect
clientPort=2181
server.1=node1:2888:3888
server.2=node2:2888:3888
server.3=node3:2888:3888
#
# Be sure to read the maintenance section of the
# administrator guide before turning on autopurge.
#
# http://zookeeper.apache.org/doc/current/zookeeperAdmin.html#sc_maintenance
#
# The number of snapshots to retain in dataDir
#autopurge.snapRetainCount=3
# Purge task interval in hours
# Set to "0" to disable auto purge feature
#autopurge.purgeInterval=1
~
~
~
~
```

执行如下命令，创建目录：

`mkdir /opt/software/zookeeper/dataDir`

`mkdir /opt/software/zookeeper/dataLogDir`

4. 创建myid文件

在虚拟机node1中执行如下命令：

在dataDir目录中，创建一个名为myid的文件，并写入机器对应的数字值。

输入`vim /opt/software/zookeeper/dataDir/myid`并按回车，添加机器对应的数字值`1`。

```
# The number of milliseconds of each tick
tickTime=2000
# The number of ticks that the initial
# synchronization phase can take
1
~
~
~
```

5. 配置环境变量

在虚拟机node1中执行如下命令：

输入`vim /etc/profile`并按回车，添加环境变量如下：

`export ZK_HOME=/opt/software/zookeeper`

`export PATH=$PATH:$JAVA_HOME/bin:$ZK_HOME/bin`

```
        else
            . "$i" >/dev/null
        fi
    fi
done

unset i
unset -f pathmunge

export JAVA_HOME=/opt/software/jdk
export ZK_HOME=/opt/software/zookeeper
export PATH=$PATH:$JAVA_HOME/bin:$ZK_HOME/bin
~
~
~
"/etc/profile" 80L, 1940C written
[root@localhost software]#
```

6. zookeeper复制到其他机器的配置

在虚拟机node1中执行如下命令将zookeeper复制到虚拟机node2和node3中：

`scp -r /opt/software/zookeeper node2:/opt/software/`

`scp -r /opt/software/zookeeper node3:/opt/software/`

`scp -r /etc/profile node2:/etc/profile`

在虚拟机node2中执行如下命令使环境变量生效并修改myid文件：

`source /etc/profile`

输入`vim /opt/software/zookeeper/dataDir/myid`并按回车，机器对应的数字值修改为`2`。

在虚拟机node3中执行如下命令：

输入`vim /etc/profile`并按回车，添加环境变量如下：

`export ZK_HOME=/opt/software/zookeeper`

`export PATH=$PATH:$MYSQL_HOME/bin:$MYSQL_HOME/lib:$JAVA_HOME/bin:$ZK_HOME/bin`

```
fi

for i in /etc/profile.d/*.sh /etc/profile.d/sh.local ; do
    if [ -r "$i" ]; then
        if [ "${-#*i}" != "$-" ]; then
            . "$i"
        else
            . "$i" >/dev/null
        fi
    fi
done

unset i
unset -f pathmunge
export MYSQL_HOME=/usr/local/mysql
export JAVA_HOME=/opt/software/jdk
export ZK_HOME=/opt/software/zookeeper
export PATH=$PATH:$MYSQL_HOME/bin:$MYSQL_HOME/lib:$JAVA_HOME/bin:$ZK_HOME/bin
"/etc/profile" 80L, 2006C written
```

`source /etc/profile`

输入`vim /opt/software/zookeeper/dataDir/myid`并按回车，机器对应的数字值修改为`3`。

7. 启动zookeeper服务

在虚拟机node1、node2、node3中执行如下命令：

`zkServer.sh start`

`zkServer.sh status`

```
[root@localhost software]# source /etc/profile
[root@localhost software]# zkServer.sh start
JMX enabled by default
Using config: /opt/software/zookeeper/bin/../conf/zoo.cfg
Starting zookeeper ... STARTED
[root@localhost software]# zkServer.sh status
JMX enabled by default
Using config: /opt/software/zookeeper/bin/../conf/zoo.cfg
Mode: follower
[root@localhost software]#
```

启动命令：`zkServer.sh start`

停止命令：`zkServer.sh stop`

重启命令：`zkServer.sh restart`

查看集群节点状态：`zkServer.sh status`