系统准备

磁盘准备

将数据盘挂载到 `/data` 下

```
mount /xxx/xxx/xxx /data
```

包准备

1. ambari-2.7.4.0-centos7.tar.gz
2. ambari.repo
3. cache.tar.gz
4. Centos-7.repo
5. HDP-3.1.4.0-centos7-rpm.tar.gz
6. HDP-GPL-3.1.4.0-centos7-gpl.tar.gz
7. HDP-UTILS-1.1.0.22-centos7.tar.gz
8. hdp.gpl.repo
9. hdp.repo
10. jdk-8u181-linux-x64.tar.gz
11. libxml2-2.9.1-6.el7_2.3.x86_64.rpm
12. mysql-5.7.29-1.el7.x86_64.rpm-bundle.tar
13. rpm-gpg.tar.gz
14. scala-2.11.12.tgz
15. scala-2.12.10.tgz

信息收集

1. 收集主机名 `hostname -f`
2. 列出你想要在每个主机上安装的组件
3. 组建好各个数据目录

系统参数设置&工具使用

1. 修改 /etc/security/limits.conf 添加如下内容

```
* soft nofile 65536
* hard nofile 65536
* soft nproc unlimited
* hard nproc unlimited
```

修改语句：

```
cat << EOF >> /etc/security/limits.conf
* soft nofile 65536
* hard nofile 65536
* soft nproc unlimited
* hard nproc unlimited
EOF
```

2. 修改 /etc/security/limits.d/20-nproc.conf (centos6 /etc/security/limits.d/90-nproc.conf) 文件内容如下

```
*          soft    nproc     unlimited
root       soft    nproc     unlimited
```

selinux配置

1. 一次性修改 `setenforce 0`
2. 永久修改：编辑 `/etc/selinux/config` 文件，

```
SELINUX=disabled
```

```
sed 's#SELINUX=enforcing#SELINUX=disabled#g' /etc/selinux/config -i
```

3. 修改 `/etc/yum/pluginconf.d/refresh-packagekit.conf`

```
enabled=0
```

4. umask 配置，ambari和HDP只支持022或者027，如果默认是022或者0022就不用修改，永久修改方法

```
echo "umask 0022" >> /etc/profile
```

免密登陆配置

1. 到 `~/.ssh/` 目录下先用 `ssh-keygen` 命令创建密钥公钥
2. 用 `ssh-copy-id` 进行配置

```
ssh-copy-id hadoop@IP1
ssh-copy-id hadoop@IP2
ssh-copy-id hadoop@IP3
```

3. 测试是否通过

DNS 和 NSCD配置

hosts file

将三台主机和ip添加进 `/etc/hosts` 文件就可以了

hostname

需要配置成正式域名的样式

```
hostnamectl set-hostname xxx --static
```

网络配置

给 `/etc/sysconfig/network` 文件添加内容

```
NETWORKING=yes
HOSTNAME=<fully.qualified.domain.name>
```

样例命令

```
cat << EOF >> /etc/sysconfig/network
# Created by anaconda
NETWORKING=yes
HOSTNAME=data1
EOF
```

防火墙配置

```
systemctl disable firewalld
service firewalld stop
```

NTP配置(有点问题，之后再看)

1. 安装 `yum install ntpdate ntp -y`
2. 配置 `vim /etc/ntp.conf`

```
# For more information about this file, see the man pages
# ntp.conf(5), ntp_acc(5), ntp_auth(5), ntp_clock(5), ntp_misc(5), ntp_mon(5).

driftfile /var/lib/ntp/drift
logfile /var/log/ntpd.log

# Permit time synchronization with our time source, but do not
# permit the source to query or modify the service on this system.
restrict default nomodify notrap nopeer noquery

# Permit all access over the loopback interface.  This could
# be tightened as well, but to do so would effect some of
# the administrative functions.
restrict 127.0.0.1
restrict ::1
restrict 192.168.198.0 mask 255.255.255.0 nomodify notrap

# Hosts on local network are less restricted.
#restrict 192.168.1.0 mask 255.255.255.0 nomodify notrap

# Use public servers from the pool.ntp.org project.
# Please consider joining the pool (http://www.pool.ntp.org/join.html).
#server 0.centos.pool.ntp.org iburst
#server 1.centos.pool.ntp.org iburst
#server 2.centos.pool.ntp.org iburst
#server 3.centos.pool.ntp.org iburst

server 0.cn.pool.ntp.org iburst
server 1.cn.pool.ntp.org iburst
server 2.cn.pool.ntp.org iburst
server 3.cn.pool.ntp.org iburst

#新增:当外部时间不可用时，使用本地时间.
server 192.168.198.53 iburst
fudge 127.0.0.1 stratum 10

#broadcast 192.168.1.255 autokey        # broadcast server
#broadcastclient                        # broadcast client
#broadcast 224.0.1.1 autokey            # multicast server
#multicastclient 224.0.1.1              # multicast client
#manycastserver 239.255.254.254         # manycast server
#manycastclient 239.255.254.254 autokey # manycast client
restrict 0.cn.pool.ntp.org nomodify notrap noquery
restrict 1.cn.pool.ntp.org nomodify notrap noquery
restrict 2.cn.pool.ntp.org nomodify notrap noquery

# Enable public key cryptography.
#crypto

includefile /etc/ntp/crypto/pw
```

```
# Key file containing the keys and key identifiers used when operating
# with symmetric key cryptography.
keys /etc/ntp/keys

# Specify the key identifiers which are trusted.
#trustedkey 4 8 42

# Specify the key identifier to use with the ntpdc utility.
#requestkey 8

# Specify the key identifier to use with the ntpq utility.
#controlkey 8

# Enable writing of statistics records.
#statistics clockstats cryptostats loopstats peerstats

# Disable the monitoring facility to prevent amplification attacks using ntpdc
# monlist command when default restrict does not include the noquery flag. See
# CVE-2013-5211 for more details.
# Note: Monitoring will not be disabled with the limited restriction flag.
disable monitor
```

离线yum包安装

JAVA安装

1. 查看是否有自带 `open JDK`

```
rpm -qa | grep java
```

2. 通过命令删除

```
yum remove "*openjdk*"
```

> 最好把前面列出来的，一个一个删除
> 综合shell

```
for i in $(rpm -qa | grep java);do yum remove -y $i;done
```

3. 下载 `oracle JDK`
   jdk8下载页面
4. tar包安装方式(.tar.gz)
   将tar包解压到一个目录下，各人比较喜欢解压到 `/opt/run` 目录下，然后再通过软连接到 `/usr/local/java` 这样便于版本更新，再在 `/etc/profile` 添加环境变量。 命令如下：

```
mkdir /opt/binary
tar zxf jdk-8u181-linux-x64.tar.gz -C /opt/binary
ln -s /opt/binary/jdk1.8.0_181 /usr/local/java
cat << EOF >> /etc/profile
#JAVA_HOME
export JAVA_HOME=/usr/local/java
export JRE_HOME=\$JAVA_HOME/jre
export CLASSPATH=.:\$JAVA_HOME/lib:\$JRE_HOME/lib
export PATH=\${PATH}:\${JAVA_HOME}/bin
EOF
```

安装MySQL

1. 先删除自带 mariadb-libs-5.5.60-1.el7_5.x86_64

```
rpm -e --nodeps mariadb-libs-5.5.60-1.el7_5.x86_64
```

2. 按顺序安装包

```
rpm -ivh mysql-community-common-5.7.29-1.el7.x86_64.rpm
rpm -ivh mysql-community-libs-5.7.29-1.el7.x86_64.rpm
rpm -ivh mysql-community-client-5.7.29-1.el7.x86_64.rpm
rpm -ivh mysql-community-server-5.7.29-1.el7.x86_64.rpm
rpm -ivh mysql-community-devel-5.7.29-1.el7.x86_64.rpm
```

3. 启动

```
systemctl start mysqld
```

4. 查看初始化密码

```
grep 'temporary password' /var/log/mysqld.log
```

5. 设置简单密码模式

```
cat "validate_password = off" >> /etc/my.cnf
```

6. 修改密码

```
ALTER USER 'root'@'localhost' IDENTIFIED BY 'ewell@123';
```

7. 创建超级用户

```
CREATE USER 'ewell'@'%' IDENTIFIED BY 'ewell@123';
GRANT ALL ON *.* TO 'ewell'@'%';
GRANT all ON *.* TO 'ewell'@'%' WITH GRANT OPTION;
flush  privileges;
```

配置Ambari

1. 先配置数据库

```
create database ambari character set utf8;
CREATE USER 'ambari'@'%' IDENTIFIED BY '123456';
GRANT ALL PRIVILEGES ON *.* TO 'ambari'@'%';
FLUSH PRIVILEGES;
create database hive character set utf8;
CREATE USER 'hive'@'%' IDENTIFIED BY '123456';
GRANT ALL PRIVILEGES ON hive.* TO 'hive'@'%';
FLUSH PRIVILEGES;
create database oozie character set utf8;
CREATE USER 'oozie'@'%' IDENTIFIED BY '123456';
GRANT ALL PRIVILEGES ON oozie.* TO 'oozie'@'%';
FLUSH PRIVILEGES;
create database ranger character set utf8;
CREATE USER 'rangeradmin'@'%' IDENTIFIED BY '123456';
GRANT ALL PRIVILEGES ON rangeradmin.* TO 'rangeradmin'@'%';
FLUSH PRIVILEGES;
```

2. 安装httpd服务

```
yum install -y yum-utils createrepo httpd
```

3. 会有目录 `/var/www/html` 并创建目录

```
mkdir -p /var/www/html/ambari/2.7.4
mkdir -p /var/www/html/hdp/3.1.4
```

4. 将之前下的包都解压到ambari目录下

```
tar zxf ambari-2.7.4.0-centos7.tar.gz -C /var/www/html/ambari/2.7.4
tar zxf HDP-3.1.4.0-centos7-rpm.tar.gz -C /var/www/html/hdp/3.1.4
tar zxf HDP-UTILS-1.1.0.22-centos7.tar.gz -C /var/www/html/hdp/3.1.4
tar zxf HDP-GPL-3.1.4.0-centos7-gpl.tar.gz -C /var/www/html/hdp/3.1.4
```

5. 获取repo配置文件

```
cp ambari.repo /etc/yum.repos.d
cp hdp.gpl.repo /etc/yum.repos.d
cp hdp.repo /etc/yum.repos.d
```

6. 配置repo文件

ambari.repo

```
#VERSION_NUMBER=2.7.4.0-118
[ambari-2.7.4.0]
name=ambari Version - ambari-2.7.4.0
baseurl=http://data1/ambari/2.7.4/ambari/centos7/2.7.4.0-118/
gpgcheck=1
gpgkey=http://data1/ambari/2.7.4/ambari/centos7/2.7.4.0-118/RPM-GPG-KEY/RPM-GPG-KEY-Jenkins
enabled=1
priority=1
```

hdp.repo

```
#VERSION_NUMBER=3.1.4.0-315
[HDP-3.1.4.0]
name=HDP Version - HDP-3.1.4.0
baseurl=http://data1/hdp/3.1.4/HDP/centos7/3.1.4.0-315/
gpgcheck=1
gpgkey=http://data1/hdp/3.1.4/HDP/centos7/3.1.4.0-315/RPM-GPG-KEY/RPM-GPG-KEY-Jenkins
enabled=1
priority=1


[HDP-UTILS-1.1.0.22]
name=HDP-UTILS Version - HDP-UTILS-1.1.0.22
baseurl=http://data1/hdp/3.1.4/HDP-UTILS/centos7/1.1.0.22/
gpgcheck=1
gpgkey=http://data1/hdp/3.1.4/HDP-UTILS/centos7/1.1.0.22/RPM-GPG-KEY/RPM-GPG-KEY-Jenkins
enabled=1
priority=1
```

hdp.gpl.repo

```
#VERSION_NUMBER=3.1.4.0-315
[HDP-GPL-3.1.4.0]
name=HDP-GPL Version - HDP-GPL-3.1.4.0
baseurl=http://data1/hdp/3.1.4/HDP-GPL/centos7/3.1.4.0-315/
gpgcheck=1
gpgkey=http://data1/hdp/3.1.4/HDP-GPL/centos7/3.1.4.0-315/RPM-GPG-KEY/RPM-GPG-KEY-Jenkins
enabled=1
priority=1
```

7. 生成本地源

```
createrepo /var/www/html/hdp/3.1.4/HDP/centos7/
createrepo /var/www/html/hdp/3.1.4/HDP-UTILS/
```

8. 将 `ambari.repo hdp.repo hdp.gpl.repo` 三个文件复制到其他机器上

```
for i in {/etc/yum.repos.d/ambari.repo,/etc/yum.repos.d/hdp.repo,/etc/yum.repos.d/hdp.gpl.re
```

9. 关闭 gpgcheck

```
echo "gpgcheck=0" >> /etc/yum/pluginconf.d/priorities.conf
```

复制MySQL驱动程序

> mv mysql-connector-java-5.1.47.jar /usr/share/java/mysql-connector-java.jar

安装ambari

命令行安装Ambari-server

```
yum install ambari-server
```

初始化

```
ambari-server setup  --jdbc-db=mysql --jdbc-driver=/usr/share/java/mysql-connector-java.jar
ambari-server setup
```

- [ ] 添加 setup 安装步骤图

setup选择

如图:

数据库创建 ambari 库

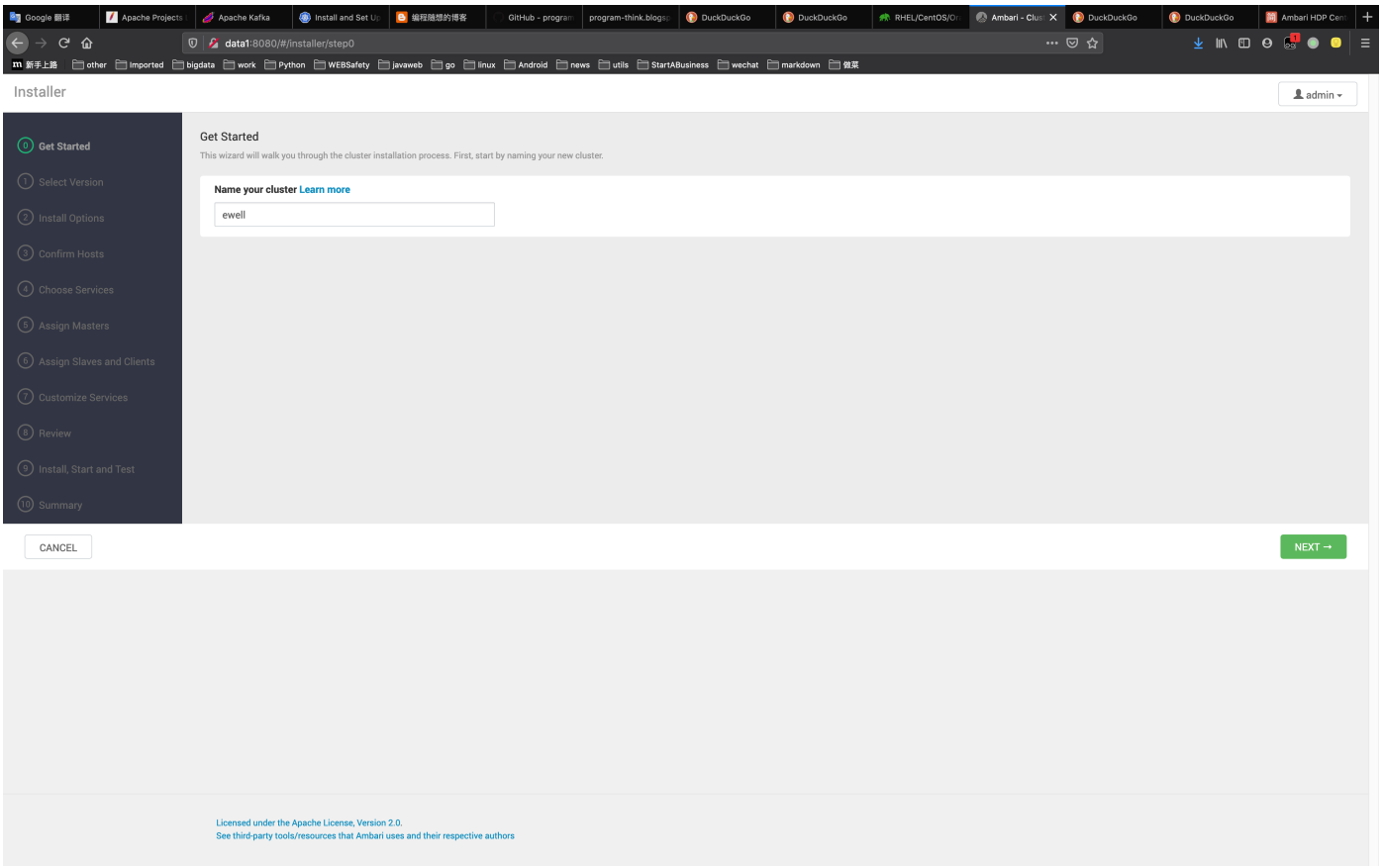
```
mysql -uambari -p ambari < /var/lib/ambari-server/resources/Ambari-DDL-MySQL-CREATE.sql
```

启动服务器

```
ambari-server start
```

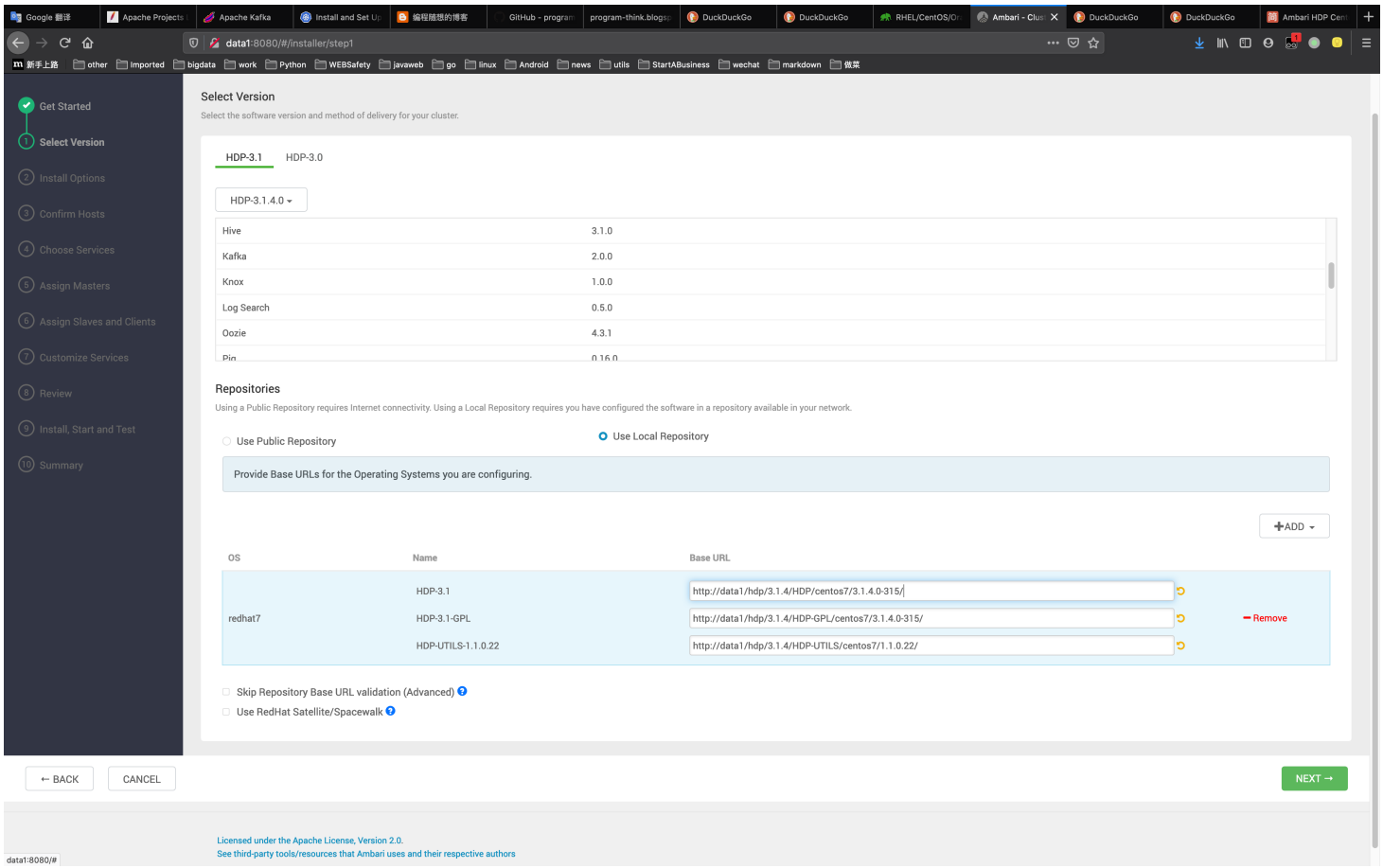
访问界面配置

1. 浏览器输入 `http://data1:8080`
2. 输入用户名密码登录 默认为 `admin admin`
3. GetStart 填入集群名字 `ewell`



4. Select Version 选择 3.1.4 版本,删除其他源只留下 `redhat7` ,配置如下

```
HDP-3.1              http://data1/hdp/3.1.4/HDP/centos7/3.1.4.0-315/
HDP-3.1-GPL          http://data1/hdp/3.1.4/HDP-GPL/centos7/3.1.4.0-315/
HDP-UTILS-1.1.0.22   http://data1/hdp/3.1.4/HDP-UTILS/centos7/1.1.0.22/
```



5. Target Hosts 配置 `data[1-3]`
6. Host Registration Information 配置 `Ambari-server` 的私钥
7. Confirm Hosts 之前手动安装过 `Ambari-agent` 就很快
8. 选择配置这些要根据实际需求了
9. 安装各种组件
10. 初始界面
11. 删除 `SmartSense`

配置安装完后删除SmartSense

由于这个服务是辅助hadoop的并且，没有id就启动不了，而id是官网发放的，所以就干脆删除了

```
curl -u admin:admin -i -H 'X-Requested-By: ambari' -X PUT -d '{"RequestInfo": {"context" :"Stop

curl -u admin:admin -i -H 'X-Requested-By: ambari' -X POST -d '{"RequestInfo": {"context" :"Unir

curl -u admin:admin -H 'X-Requested-By: ambari' -X DELETE http://data1:8080/api/v1/clusters/ewel
```

遇到的问题

ssl问题

```
etUtil.py:96 - EOF occurred in violation of protocol (_ssl.c:579)
NetUtil.py:97 - SSLError: Failed to connect. Please check openssl library versions.
```

编辑 `/etc/ambari-agent/conf/ambari-agent.ini` 文件，添加

```
[security]
force_https_protocol=PROTOCOL_TLSv1_2
```

安装HDP时，HST Agent Instal安装失败(扩展，任何一个组件都这样操作)

哪台主机错误，就把对应的软件删除了，然后在页面重装

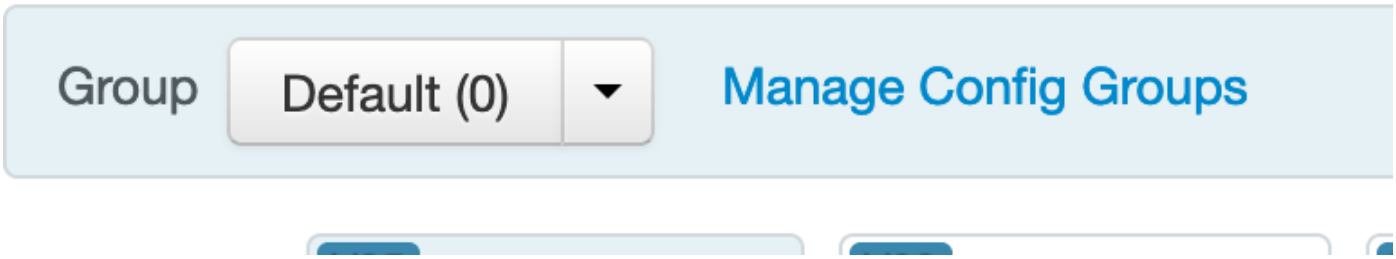
1. yum list | grep xxxx
2. yum remove hadoop*
3. repeat

服务器软连接错误

zookeeper无法安装，服务器文件是在老的软链接

KAFKA 外网连接配置

1. 在kafka配置界面， `Manage Config Groups` 新增3个组，并且每个分组添加对应服务器



Configuration Group have the same set of configurations for

Default (3)

da
da
da

Ove

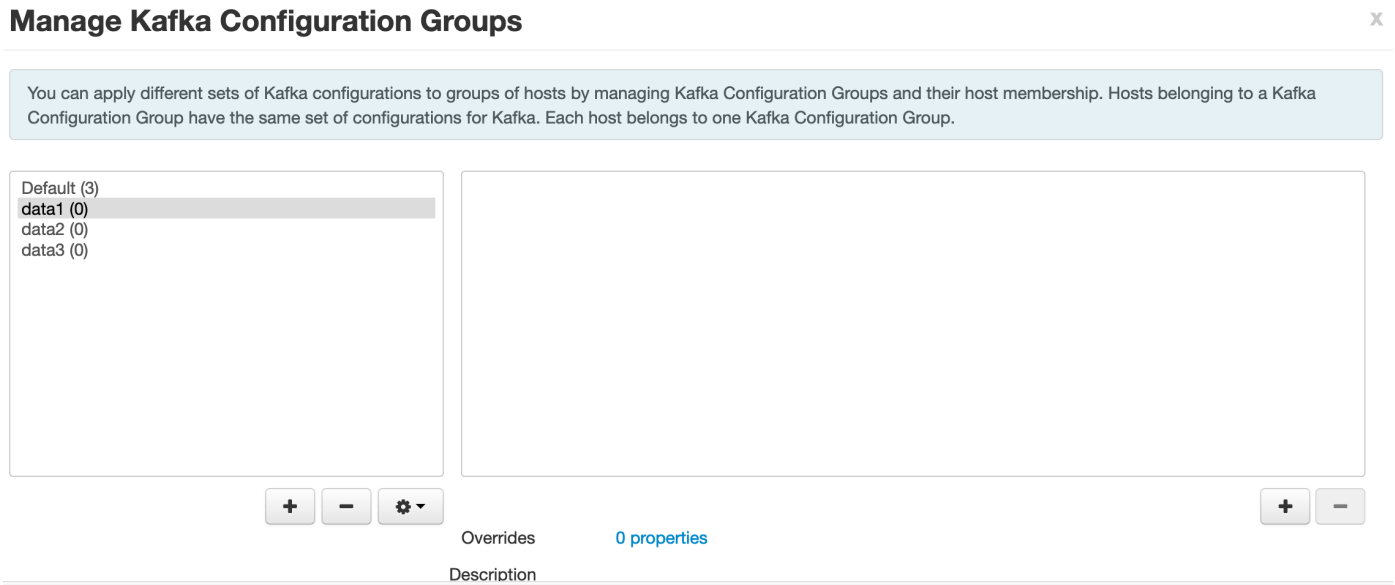
Manage Kafka Configuration Groups

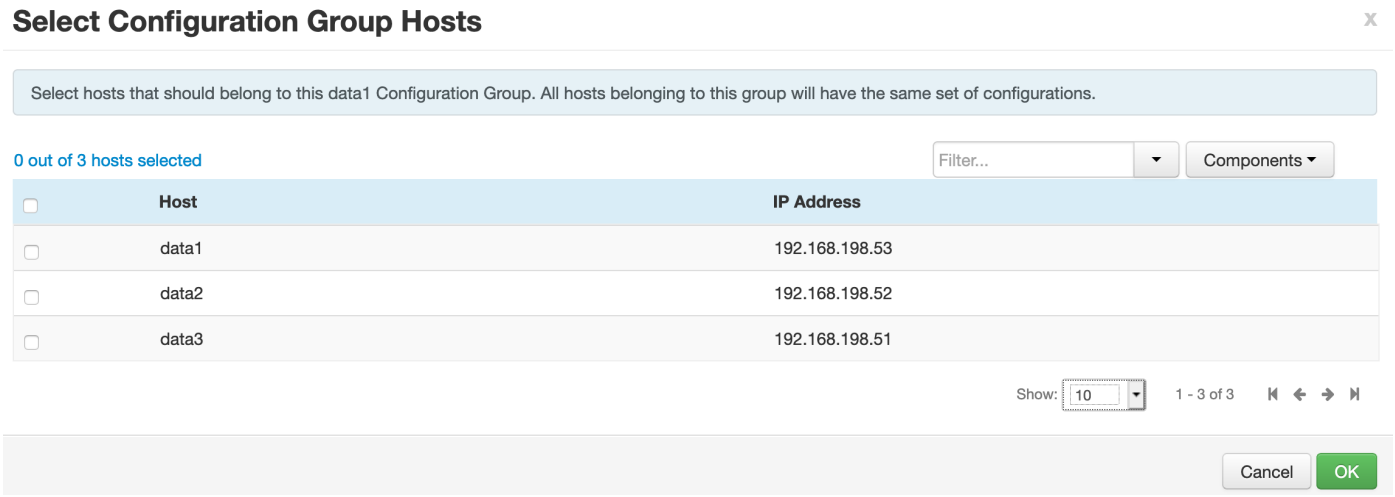
You can apply different sets of Kafka configurations to groups of
Configuration Group have the same set of configurations for Kaf

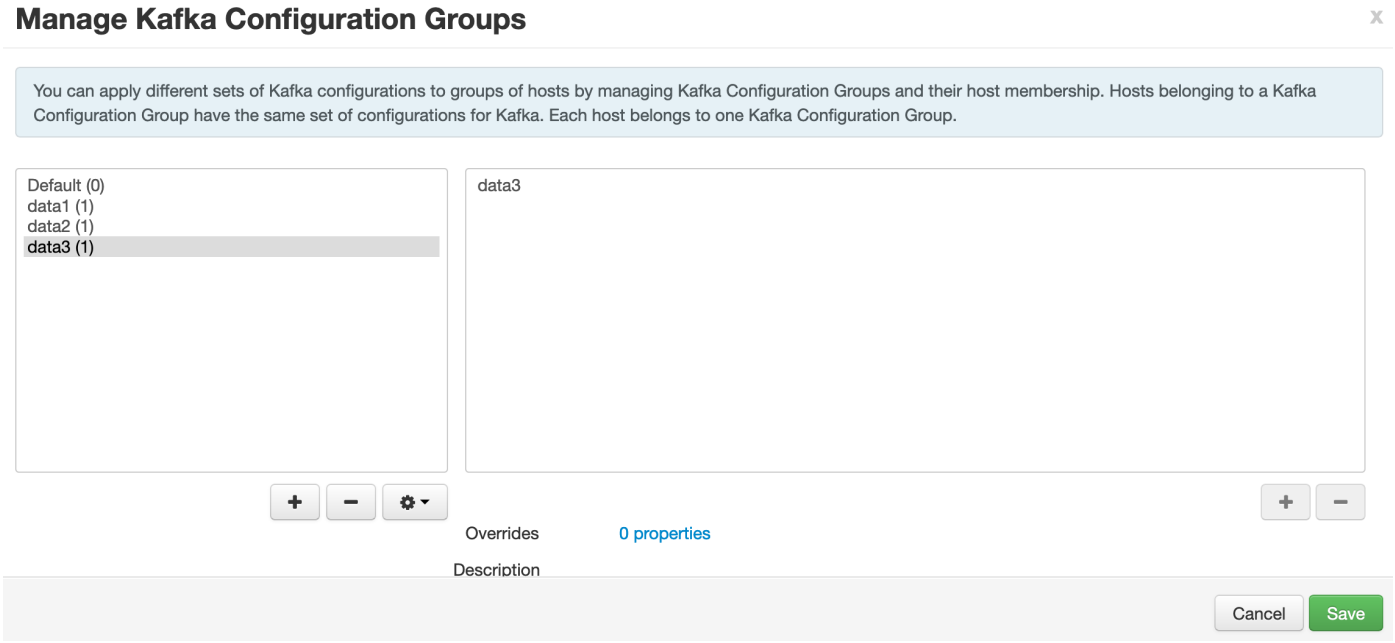
Default (3)
data1 (0)
data2 (0)
data3 (0)

Overrid

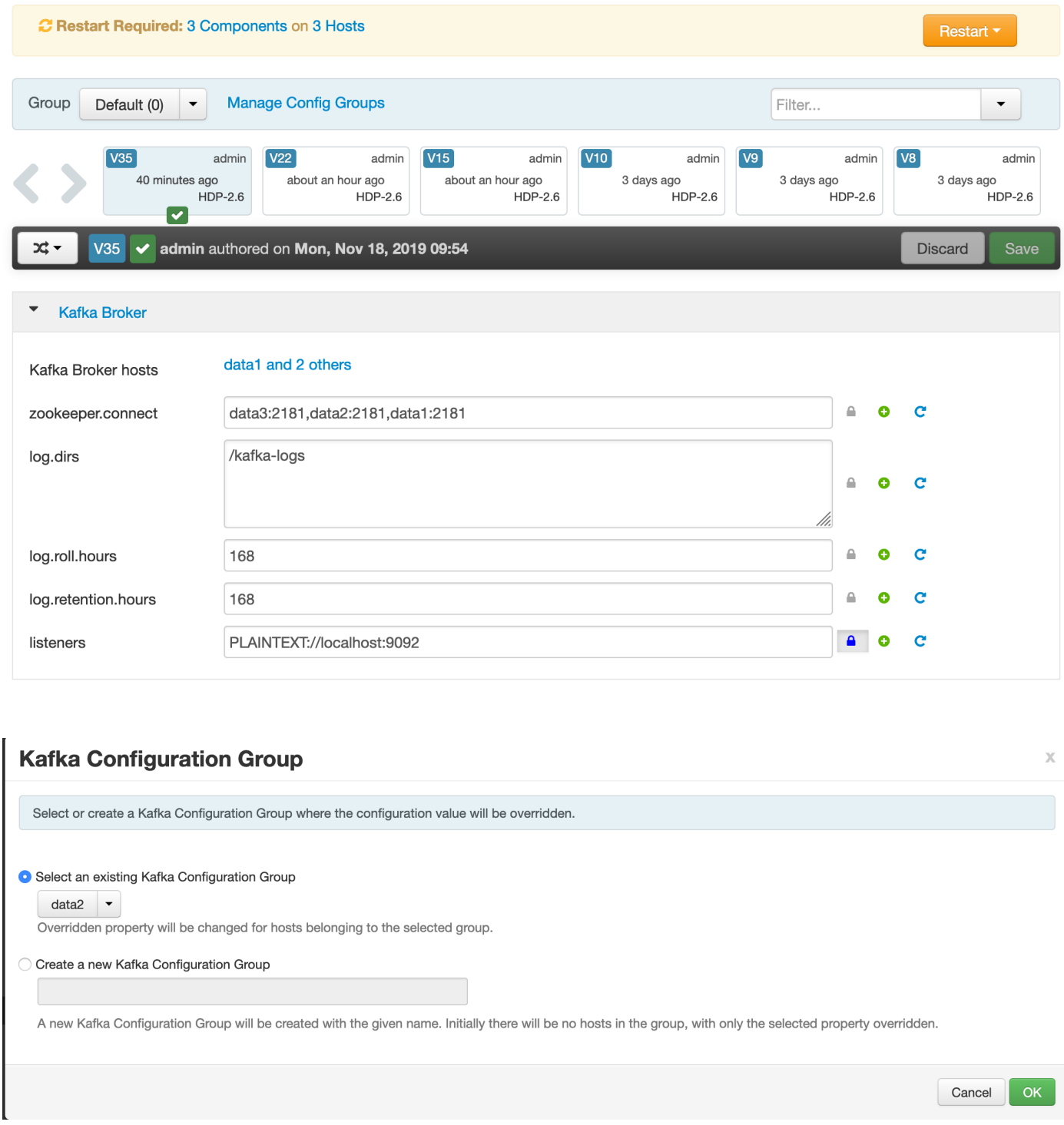
Descripti

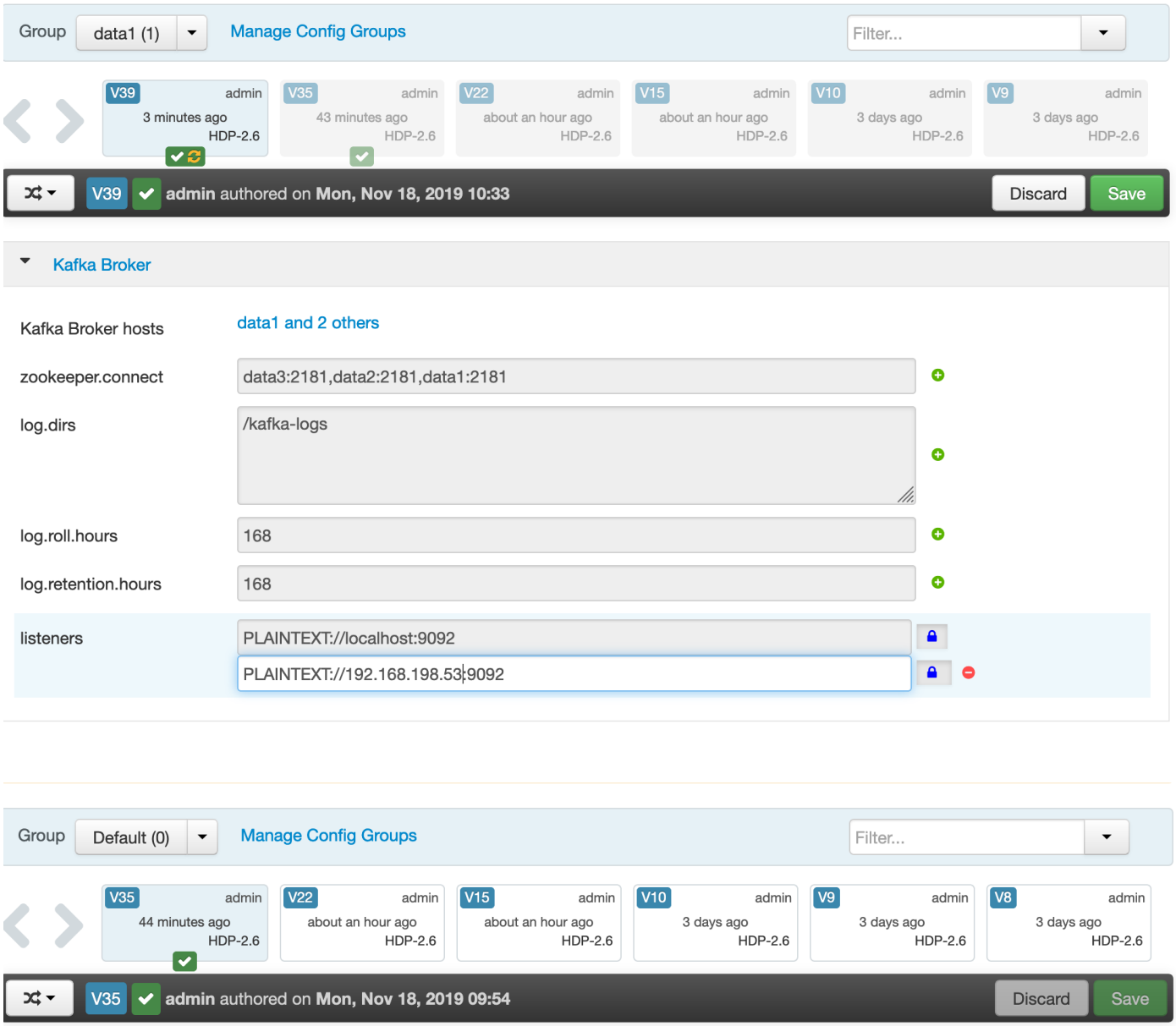




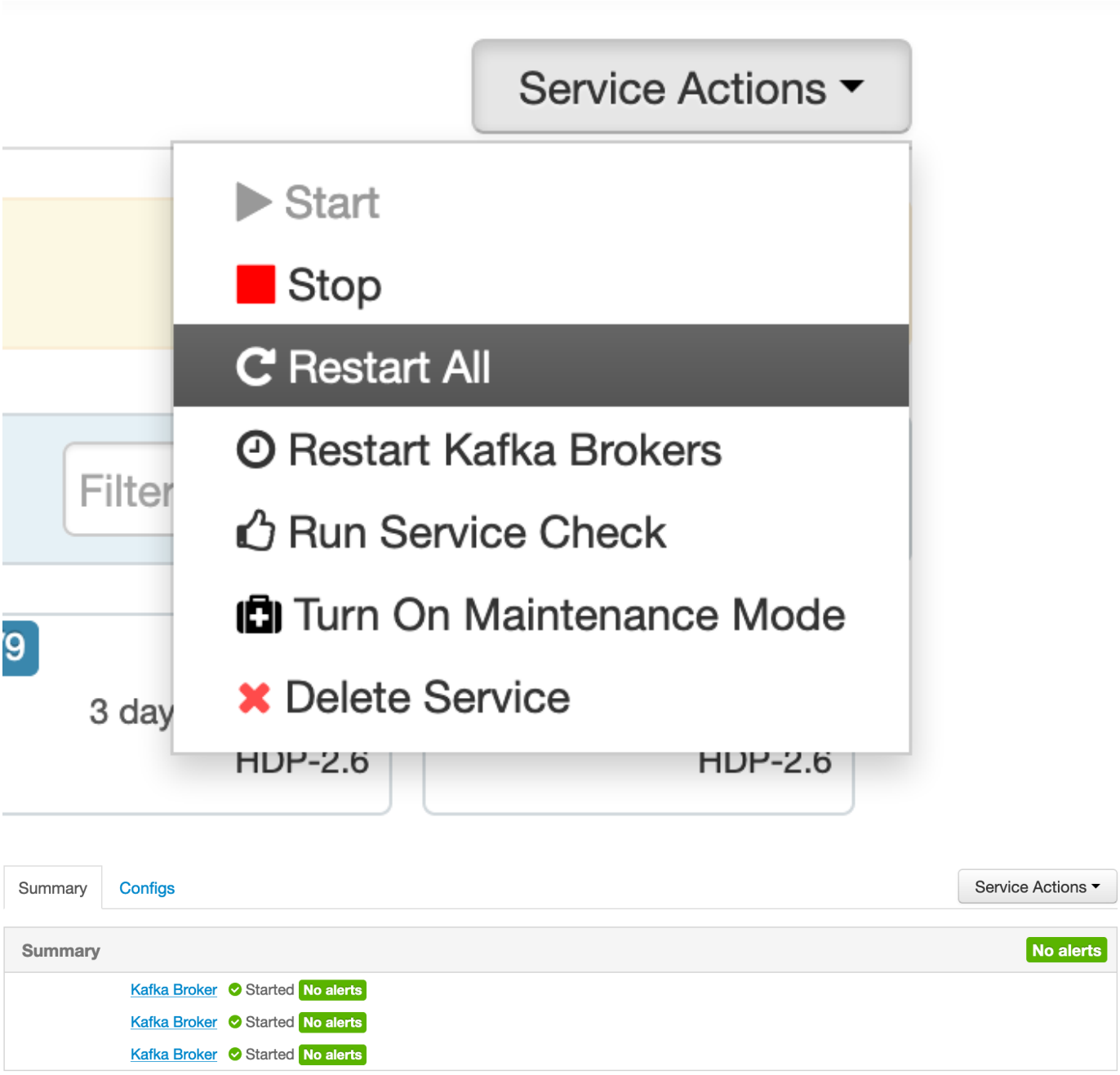


2. 配置服务器ip配置，每个组的每个 `listeners` 对应着各自的ip


Restart Required: 3 Components on 3 Hosts
Restart
Group
Default (0)
Manage Config Groups
Filter...
V35 admin 40 minutes ago HDP-2.6
V22 admin about an hour ago HDP-2.6
V15 admin about an hour ago HDP-2.6
V10 admin 3 days ago HDP-2.6
V9 admin 3 days ago HDP-2.6
V8 admin 3 days ago HDP-2.6
V35 admin authored on Mon, Nov 18, 2019 09:54
Discard
Save
Kafka Broker
Kafka Broker hosts
data1 and 2 others
zookeeper.connect
data3:2181,data2:2181,data1:2181
log.dirs
/kafka-logs
log.roll.hours
168
log.retention.hours
168
listeners
PLAINTEXT://localhost:9092
Kafka Configuration Group
Select or create a Kafka Configuration Group where the configuration value will be overridden.
Select an existing Kafka Configuration Group
data2
Overridden property will be changed for hosts belonging to the selected group.
Create a new Kafka Configuration Group
A new Kafka Configuration Group will be created with the given name. Initially there will be no hosts in the group, with only the selected property overridden.
Cancel
OK


Group
data1 (1)
Manage Config Groups
Filter...
V39 admin 3 minutes ago HDP-2.6
V35 admin 43 minutes ago HDP-2.6
V22 admin about an hour ago HDP-2.6
V15 admin about an hour ago HDP-2.6
V10 admin 3 days ago HDP-2.6
V9 admin 3 days ago HDP-2.6
V39 admin authored on Mon, Nov 18, 2019 10:33
Discard
Save
Kafka Broker
Kafka Broker hosts
data1 and 2 others
zookeeper.connect
data3:2181,data2:2181,data1:2181
log.dirs
/kafka-logs
log.roll.hours
168
log.retention.hours
168
listeners
PLAINTEXT://localhost:9092
PLAINTEXT://192.168.198.53:9092
Group
Default (0)
Manage Config Groups
Filter...
V35 admin 44 minutes ago HDP-2.6
V22 admin about an hour ago HDP-2.6
V15 admin about an hour ago HDP-2.6
V10 admin 3 days ago HDP-2.6
V9 admin 3 days ago HDP-2.6
V8 admin 3 days ago HDP-2.6
V35 admin authored on Mon, Nov 18, 2019 09:54
Discard
Save
Kafka Broker
Kafka Broker hosts
data1 and 2 others
zookeeper.connect
data3:2181,data2:2181,data1:2181
log.dirs
/kafka-logs
log.roll.hours
168
log.retention.hours
168
listeners
PLAINTEXT://localhost:9092
PLAINTEXT://192.168.198.53:9092
Switch to 'data1'
PLAINTEXT://192.168.198.52:9092
Switch to 'data2'
PLAINTEXT://192.168.198.51:9092
Switch to 'data3'

3. 配置结束后，重启



删除所有老包

```
yum remove $(yum list installed | grep HDP | awk '{print $1}') -y
```

宕机重启后 Ambari Metrics 启动失败

到主机上，将相关进程强制 kill 之后，再次启动