# CDH6部署文档

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## 关于本文档

### 文档信息

| | | |
|---|---|---|
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| 说明 | | |
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# 1一、安装前准备

PS：此安装文档适用于CDH6.0版本，操作系统版本7以上。

## 文件准备

| 文件 | 存放路径 | |
|---|---|---|
| Cloudera Manager包 | /opt/cm6/ | |
| parcels | /opt/parcels | |
| JDK1.8 | /opt/cm6/oracle-j2sdk1.8-1.8.0+update141-1.x86_64.rpm | 所有节点 |
| MYSQL5.7 | /opt/mysql/mysql-5.7.19-1.el7.x86_64.rpm-bundle.tar | |
| MYSQL_JDBC | /opt/mysql-jdbc/mysql-connector-java.jar | 所有节点 |

配置dns

Vi /etc/resolv.conf

nameserver 114.114.114.114

## 配置ssh免登陆

在172.20.85.29、172.20.85.39 上分别生成一对钥匙

ssh-keygen -t rsa

...

#将公钥拷贝到其他节点，包括自己

ssh-copy-id 172.20.85.29

...

ssh-copy-id -i ~/.ssh/id_rsa.pub user@server

## 安装ansible

Yum install  ansible

vi /etc/ansible/hosts

[cdh]

172.20.85.[10:59]

[hive]
172.20.85.[10:44]

[hbase]
172.20.85.[45:59]

## 挂载磁盘

1.格式化:
mkfs -t xfs /dev/sdb
2.  硬盘挂载:
主节点 ： mount  /dev/sdb  /opt
计算节点 ： mount  /dev/sdb  /dfs/data1
       mount  /dev/sdc  /dfs/data2

3.查询是否成功:
  df -HT

## 修改所有节点主机名

hostnamectl set-hostname cdh85-29

ansible 172.20.85.10  -m shell -a "hostnamectl set-hostname cdh85-10  "
    ...

## 修改所有节点主机名和IP映射关系

vim /etc/hosts
172.20.85.10 cdh85-10
    172.20.85.11 cdh85-11
    172.20.85.12 cdh85-12
    172.20.85.13 cdh85-13
    172.20.85.14 cdh85-14
    172.20.85.15 cdh85-15
    172.20.85.16 cdh85-16
    172.20.85.17 cdh85-17
    172.20.85.18 cdh85-18
    172.20.85.19 cdh85-19
    172.20.85.20 cdh85-20

172.20.85.21 cdh85-21
172.20.85.22 cdh85-22
172.20.85.23 cdh85-23
172.20.85.24 cdh85-24
172.20.85.25 cdh85-25
172.20.85.26 cdh85-26
172.20.85.27 cdh85-27
172.20.85.28 cdh85-28
172.20.85.29 cdh85-29
172.20.85.30 cdh85-30
172.20.85.31 cdh85-31
172.20.85.32 cdh85-32
172.20.85.33 cdh85-33
172.20.85.34 cdh85-34
172.20.85.35 cdh85-35
172.20.85.36 cdh85-36
172.20.85.37 cdh85-37
172.20.85.38 cdh85-38
172.20.85.39 cdh85-39
172.20.85.40 cdh85-40
172.20.85.41 cdh85-41
172.20.85.42 cdh85-42
172.20.85.43 cdh85-43
172.20.85.44 cdh85-44
172.20.85.45 cdh85-45
172.20.85.46 cdh85-46
172.20.85.47 cdh85-47
172.20.85.48 cdh85-48
172.20.85.49 cdh85-49
172.20.85.50 cdh85-50
172.20.85.51 cdh85-51
172.20.85.52 cdh85-52
172.20.85.53 cdh85-53
172.20.85.54 cdh85-54
172.20.85.55 cdh85-55
172.20.85.56 cdh85-56
172.20.85.57 cdh85-57
172.20.85.58 cdh85-58
172.20.85.59 cdh85-59

Vi  cpfile.yml

```
---
    - hosts: cdh
```

```
        tasks:
            - name: copy files
                copy:
                        src: /etc/hosts
                        dest: /etc/hosts
```

```
ansible-playbook   cpfile.yml
```

## 系统优化

```
Vi jiagu-baoxin-9-30.sh
```

```
#!/bin/bash
echo "# 关闭防火墙和selinux"
sed -i s'/SELINUX=enforcing/SELINUX=disabled/' /etc/selinux/config
setenforce  0
iptables -F
iptables -X
systemctl disable firewalld
echo "# 更新yum源"
cd /etc/yum.repos.d/
  mv /etc/yum.repos.d/*.repo /tmp/
  rpm -ivh http://192.168.25.200/olinux/7/ol7_u4_base/getPackage/wget-1.14-15.el7.x86_64.rpm
  wget http://192.168.25.200/file/baofoo-centos.repo -O /etc/yum.repos.d/baofoo-centos.repo
  yum clean all
  yum makecache
echo " # 调整时区"
  ln -sf /usr/share/zoneinfo/Asia/Shanghai /etc/localtime
  yum install net-tools ntpdate -y
echo " # 安装开发包组"
  yum groupinstall "Development Tools" -y
echo " # 安装基础环境和常用工具包"
  yum -y make cmake gcc-c++ gcc zib zlib-devel lrzsz iftop dstat wget net-tools
  # 修改网卡为eth
  #cd /etc/sysconfig/network-scripts/
  #mv ifcfg-eno16777728 ifcfg-eth0         //NAME=eth0   #name修改为eth0
```

```
  #sed -i s/"crashkernel=auto rhgb"/"crashkernel=auto rhgb net.ifnames=0 biosdevname=0"/g
/etc/sysconfig/grub
  #grub2-mkconfig -o /boot/grub2/grub.cfg
echo " # 禁用不必要的服务"
  systemctl stop   libvirtd.service rpcbind.service rpcbind.socket avahi-daemon.service avahi-
daemon.socket cups.path cups.service cups.socket postfix.service
  systemctl disable   libvirtd.service rpcbind.service rpcbind.socket avahi-daemon.service avahi-
daemon.socket cups.path cups.service cups.socket postfix.service
echo " # 安全加固"
  ###设置会话超时
  echo "TMOUT=900">>/etc/profile
  ###设置umask
  echo "umask 027">>/etc/profile
  ###pam限制su
  echo "auth     required         /lib64/security/pam_wheel.so group=wheel">>/etc/pam.d/su
  ###SSH配置
# echo "PermitRootLogin no">>/etc/ssh/sshd_config
#echo "Ciphers aes128-ctr,aes192-ctr,aes256-ctr,aes128-cbc,3des-cbc,blowfish-cbc,cast128-cbc,aes192-
cbc,aes256-cbc,rijndael-cbc@lysator.liu.se">>/etc/ssh/sshd_config
  sed -i 's/GSSAPIAuthentication yes/GSSAPIAuthentication no/' /etc/ssh/sshd_config
  sed -i '/#UseDNS yes/a\UseDNS no' /etc/ssh/sshd_config
echo " ###SSH版本升级"
  yum -y update openssh-server openssh-clients openssl
  systemctl restart sshd
echo " #内核优化"
  echo -e "\nnet.ipv4.tcp_tw_reuse = 1
  \nnet.ipv4.tcp_tw_recycle = 1
  \nnet.ipv4.tcp_keepalive_time = 1200
  \nnet.ipv4.ip_local_port_range = 10000 65000
  \nnet.ipv4.tcp_max_syn_backlog = 8192
  \nnet.ipv4.tcp_max_tw_buckets = 5000
  \nfs.file-max = 655350
  \nnet.ipv4.route.gc_timeout = 100
  \nnet.ipv4.tcp_syn_retries = 1
  \nnet.ipv4.tcp_synack_retries = 1
  \nnet.core.netdev_max_backlog = 16384
  \nnet.ipv4.tcp_max_orphans = 16384
  \nnet.ipv4.tcp_fin_timeout = 2
  \net.core.somaxconn=32768
  \kernel.threads-max=196605
  \kernel.pid_max=196605
  \vm.max_map_count=393210
  \nvm.swappiness = 0"   >> /etc/sysctl.conf && echo 'yes'
  /sbin/sysctl -p
echo " #设置最大文件打开数    ulimit -a"
  sed -i '$ a\* soft nofile 196605' /etc/security/limits.conf
```

```
  sed -i '$ a\* hard nofile 196605' /etc/security/limits.conf
echo "* soft nproc 196605" >> /etc/security/limits.conf
echo "* hard nproc 196605" >> /etc/security/limits.co

echo " #关闭大页面"
echo never > /sys/kernel/mm/transparent_hugepage/defrag
echo 'echo never > /sys/kernel/mm/transparent_hugepage/defrag' >> /etc/rc.local
chmod +x /etc/rc.d/rc.local

echo " #时间同步"
  /usr/sbin/ntpdate 192.168.23.108
  echo '3 */1 * * * /usr/sbin/ntpdate time3.aliyun.com | logger -t NTP' >> /var/spool/cron/root
  echo '13 */1 * * * /usr/sbin/ntpdate 192.168.23.108 | logger -t NTP' >> /var/spool/cron/root
  cp /usr/share/zoneinfo/Asia/Shanghai   /etc/localtime
  /usr/sbin/ntpdate us.pool.ntp.org
  echo "30 22 * * * /usr/sbin/ntpdate us.pool.ntp.org" >> /var/spool/cron/root
  systemctl restart crond
echo " #多余用户和组清理"
  for user in adm lp sync shutdown halt uucp operator games gopher ftp;do   passwd -l $user;done
echo " #创建数据文件目录"
  for i in {1..10} ;do mkdir /dfs/data$i -p;done
  for i in {a..j};do /usr/sbin/mkfs.xfs /dev/sd$i;done
  echo -e "/dev/sdb /dfs/data1         xfs defaults 0 0
  /dev/sdc /dfs/data2         xfs defaults 0 0
  /dev/sdd /dfs/data3         xfs defaults 0 0
  /dev/sde /dfs/data4         xfs defaults 0 0
  /dev/sdf /dfs/data5         xfs defaults 0 0
  /dev/sdg /dfs/data6         xfs defaults 0 0
  /dev/sdh /dfs/data7         xfs defaults 0 0
  /dev/sdi /dfs/data8         xfs defaults 0 0
  /dev/sdj /dfs/data9         xfs defaults 0 0"   >> /etc/fstab
  mount -a
```

## 关闭防火墙

```
#查看防火墙状态
    firewall-cmd  --state

    #关闭防火墙
    systemctl stop firewalld.service
```

#关闭防火墙开启启动

systemctl disable firewalld.service

#关闭SELINUX

setenforce 0 (临时生效)

修改/etc/selinux/config 下的 SELINUX=disabled （重启后生效）。

## 配置NTP服务

停止系统自带的ntp服务：systemctl stop chronyd

关闭开机自启动ntp服务：systemctl disable chronyd

查看系统自带ntp服务状态：systemctl status chronyd

所有节点安装相关组件： yum -y install ntp

配置开机启动： systemctl enable ntpd

检查是否设置成功： systemctl list-unit-files |grep ntpd

**主节点配置（cdh85-29）**

vi /etc/ntp.conf

```
# Use public servers from the pool.ntp.org project.
# Please consider joining the pool (http://www.pool.ntp.org/join.html).
#server 0.rhel.pool.ntp.org iburst
#server 1.rhel.pool.ntp.org iburst
#server 2.rhel.pool.ntp.org iburst
#server 3.rhel.pool.ntp.org iburst
#server 101.231.72.162 prefer
#server time3.aliyun.com iburst
server 192.168.23.108 iburst
       server ntp1.aliyun.com iburst
```

启动ntp服务：systemctl start ntpd

**配置ntp客户端（其他所有节点）**

vi /etc/ntp.conf

```
# Use public servers from the pool.ntp.org project.
# Please consider joining the pool (http://www.pool.ntp.org/join.html).
#server 0.rhel.pool.ntp.org iburst
#server 1.rhel.pool.ntp.org iburst
#server 2.rhel.pool.ntp.org iburst
#server 3.rhel.pool.ntp.org iburst
server cdh85-29 prefer
server 192.168.23.108
```

ok保存退出，请求服务器前，请先使用ntpdate手动同步一下时间： ntpdate -u n1 (主节点ntp服务器)
启动服务： systemctl start ntpd

查看服务状态：ntpstat

## JDK安装

卸载系统自带的jdk：

查看：rpm -qa|grep -i jdk

卸载：rpm -e java-1.6.0-openjdk-1.6.0.0-1.66.1.13.0.el6.x86_64 -nodeps

安装jdk并配置环境变量，版本为1.8

rpm -ivh /opt/cm6/oracle-j2sdk1.8-1.8.0+update141-1.x86_64.rpm

vi /etc/profile

JAVA_HOME=/usr/java/jdk1.8.0_141-cloudera
CLASSPATH=$JAVA_HOME/lib/tools.jar
PATH=$JAVA_HOME/bin:$PATH

export JAVA_HOME CLASSPATH PATH

source /etc/profile

## MYSQL安装

https://www.cloudera.com/documentation/enterprise/latest/topics/cm_ig_mysql.html

wget http://repo.mysql.com/mysql-community-release-el7-5.noarch.rpm
sudo rpm -ivh mysql-community-release-el7-5.noarch.rpm
sudo yum update
sudo yum install mysql-server
sudo systemctl start mysqld

https://blog.csdn.net/u014539401/article/details/78138292

cd /opt/mysql/
tar -xvf ./mysql-5.7.19-1.el7.x86_64.rpm-bundle.tar

```
rpm -ivh mysql-community-common-5.7.19-1.el7.x86_64.rpm --force --nodeps
rpm -ivh mysql-community-libs-5.7.19-1.el7.x86_64.rpm  --force --nodeps
rpm -ivh mysql-community-client-5.7.19-1.el7.x86_64.rpm  --force --nodeps
rpm -ivh mysql-community-server-5.7.19-1.el7.x86_64.rpm  --force --nodeps
rpm -ivh mysql-community-libs-compat-5.7.19-1.el7.x86_64.rpm  --force --nodeps
```

3 MYSQL配置

```
yum  install  -y  libaio

mysqld -- defaults-file=/etc/my.cnf --initialize --user=mysql    # 初始化mysql使mysql目录的拥有者为mysql用户
cat /var/log/mysqld.log # 最后一行将会有随机生成的密码
systemctl start mysqld.service # 设置mysql服务自启
mysql -uroot  -p
# 输入临时密码
ALTER USER 'root'@'localhost' IDENTIFIED BY 'root'; # 修改密码
```

4 创建库(后续安装服务等使用)

```
CREATE DATABASE cmserver DEFAULT CHARACTER SET utf8;
GRANT ALL on cmserver.* TO 'cmserveruser'@'%' IDENTIFIED BY 'password';

CREATE DATABASE metastore DEFAULT CHARACTER SET utf8;
GRANT ALL on metastore.* TO 'hiveuser'@'%' IDENTIFIED BY 'password';

CREATE DATABASE amon DEFAULT CHARACTER SET utf8;
GRANT ALL on amon.* TO 'amonuser'@'%' IDENTIFIED BY 'password';

CREATE DATABASE rman DEFAULT CHARACTER SET utf8;
GRANT ALL on rman.* TO 'rmanuser'@'%' IDENTIFIED BY 'password';

CREATE DATABASE oozie DEFAULT CHARACTER SET utf8;
GRANT ALL on oozie.* TO 'oozieuser'@'%' IDENTIFIED BY 'password';

CREATE DATABASE hue DEFAULT CHARACTER SET utf8;
GRANT ALL on hue.* TO 'hueuser'@'%' IDENTIFIED BY 'password';
```

## 安装Mysql客户端

除主节点以外的其他节点

先卸载系统自带的mysql：`yum remove -y mysql-community-common`

安装mysql客户端：`yum install -y mariadb`

CentOS 安装MariaDB

https://blog.csdn.net/wh211212/article/details/53129488

# 二、离线安装CM

下载对应CDH版本的CM，下载地址：http://archive.cloudera.com/cm5/redhat/

### 2.1 上传rpm文件到主节点（cdh-85-29）

### 2.2 安装Cloudera Manager Server

在cdh85-29上运行：

```
yum -y localinstall cloudera-manager-daemons-6.0.0-530873.el7.x86_64.rpm
yum -y localinstall cloudera-manager-server-6.0.0-530873.el7.x86_64.rpm
yum -y localinstall yum -y localinstall cloudera-manager-agent-6.0.0-530873.el7.x86_64.rpm
```

### 2.3 安装Cloudera Manager Agent

除cdh85-29以外的其他节点

```
yum -y localinstall cloudera-manager-daemons-5.12.1-1.cm5121.p0.6.el7.x86_64.rpm
yum -y localinstall cloudera-manager-agent-5.12.1-1.cm5121.p0.6.el7.x86_64.rpm
```

配置/etc/cloudera-scm-agent/config.ini修改server_host= (Name of the host where Cloudera Manager Server is running.)

# 执行初始化脚本

```
/opt/cloudera/cm/schema/scm_prepare_database.sh mysql -h 192.168.85.29 -uroot -p  baofoo@64 --scm-host 192.168.85.29 cmserver root    baofoo@64
```

启动进程

启动进程，主节点(cdh85-29)：

```
systemctl start cloudera-scm-server
systemctl start cloudera-scm-agent
```

启动进程，各子节点(除cdh85-29以外的所有节点)：

```
systemctl start cloudera-scm-agent
```

配置Cloudera Manager包yum源（主节点）

mkdir -p /var/www/html/cloudera-repos
将下载的cm包文件移到此目录下
创建repodata

[root@cdh85-29 cm6]# createrepo .

创建.repo

```
systemctl  enable|disable  httpd.service #开机启动与否
systemctl  {start|stop|restart|status}  httpd.service #单次操作状态
```

- Step 1: Configure a Repository

```
vi /etc/yum.repos.d/cloudera-manager.repo
[cloudera-manager]
name = Cloudera Manager, Version
baseurl = http://172.20.85.29/cloudera-repos/cm6/
gpgcheck = 0
```

- Step 2: Install JDK
- Step 3: Install Cloudera Manager Server

sudo yum install cloudera-manager-daemons cloudera-manager-agent cloudera-manager-server

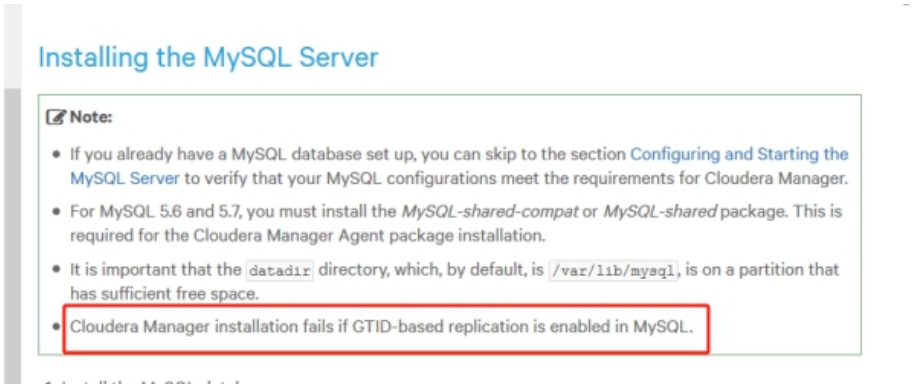
配置外置数据库
在cdh85-29上传mysql驱动包到/usr/share/java/目录，并做软连接

创建/usr/share/java目录，将mysql-jdbc包放过去
mkdir -p /usr/share/java
cd /usr/share/java && ln -s /usr/share/java/mysql-connector-java-5.1.44.jar  mysql-connector-java.jar

指定CM外部数据源：

/opt/cloudera/cm/schema/scm_prepare_database.sh mysql scm scm baofoo@64

- Step 4: Install Databases




注意 开启GTID会安装失败

wget http://repo.mysql.com/mysql-community-release-el7-5.noarch.rpm
sudo rpm -ivh mysql-community-release-el7-5.noarch.rpm
sudo yum update
sudo yum install mysql-server
sudo systemctl start mysqld

- Step 5: Set up the Cloudera Manager Database

sudo mkdir -p /usr/share/java/
chmod 755 /usr/share/java/ # 巨坑! 没改权限连接不上mysql

cd mysql-connector-java-5.1.46
sudo cp mysql-connector-java-5.1.46-bin.jar /usr/share/java/mysql-connector-java.jar

- Step 6: Install CDH and Other Software

3.3 登录管理界面

等待cm元数据库初始化完成，大概需要几分钟，随后浏览器访问：192.168.85.59:7180，默认帐号admin，默认密码admin

Hive集群

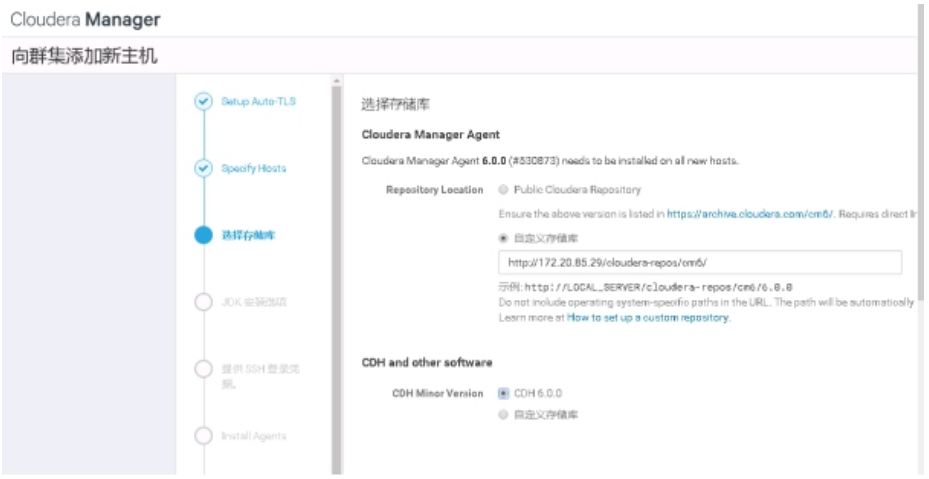
172.20.85.[10-44]

Hbase集群

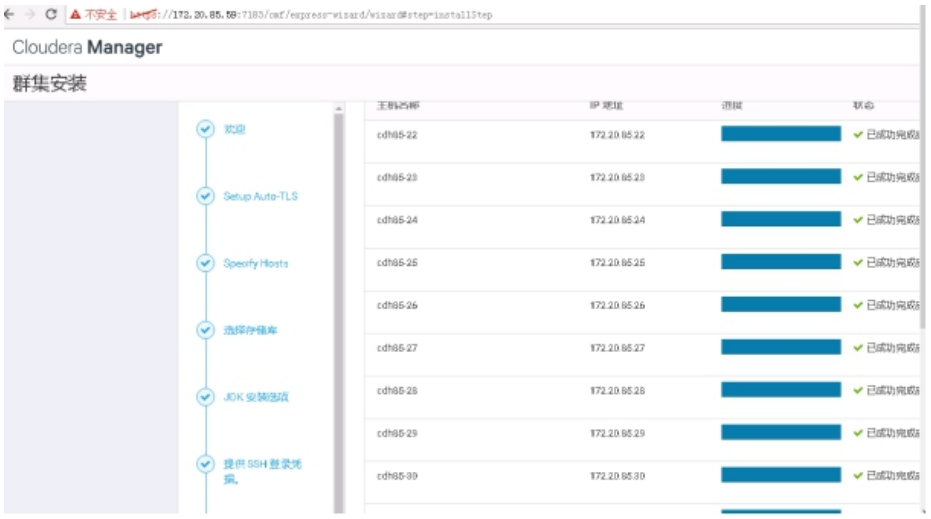
172.20.85.[45-59]

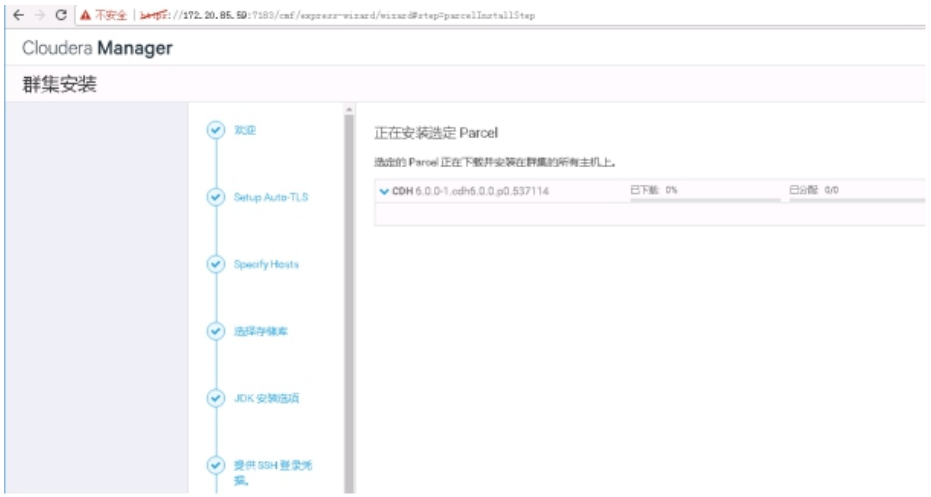

勾选主机，点击继续

http://172.20.85.29/cloudera-repos/cm6/




点击继续




离线安装CDH

3.1 上传文件

在cdh81-59上，将CHD5相关的Parcel包放到主节点的/opt/cloudera/parcel-repo/

相关文件如下：

CDH-6.0.0-1.cdh6.0.0.p0.537114-el7.parcel

CDH-6.0.0-1.cdh6.0.0.p0.537114-el7.parcel.sha256

manifest.json

下载地址：https://archive.cloudera.com/cdh6/6.0.0/parcels/

最后将CDH-6.0.0-1.cdh6.0.0.p0.537114-el7.parcel.sha256

，重命名为CDH-6.0.0-1.cdh6.0.0.p0.537114-el7.parcel.sha

，这点必须注意，否则，系统会重新下载

文件。


RHEL 7 Compatible

1 Install the python-pip package:

sudo yum install python-pip

2 Install psycopg2 2.7.5 using pip:

sudo pip install psycopg2==2.7.5 --ignore-installed

点击继续，等待安装，安装完成如下图：

点击继续

根据提示修改，点击完成

我们这里选含Impala的内核安装，点击继续

### 3.4 配置服务角色

创建hive、oozie、sentry、monitor、hue库并授权：baofoo_hive、baofoo_oozie、baofoo_sentry、baofoo_monitor、baofoo_hue

拷贝mysql驱动到hive jar包（cdh85-29）

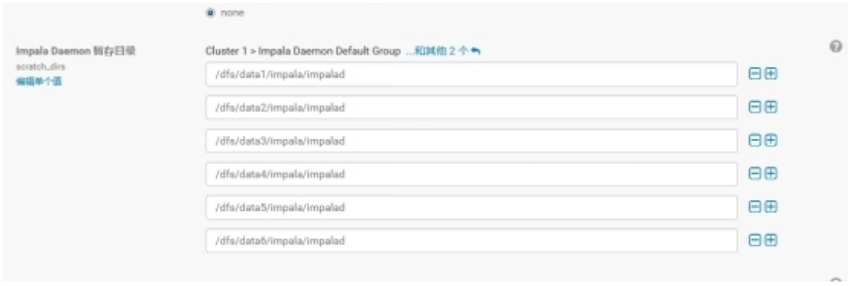
```
cd /opt/cloudera/parcels/CDH/lib/hive/lib && ln -s /usr/share/java/mysql-connector-java-5.1.44-bin.jar mysql-connector-java.jar
```

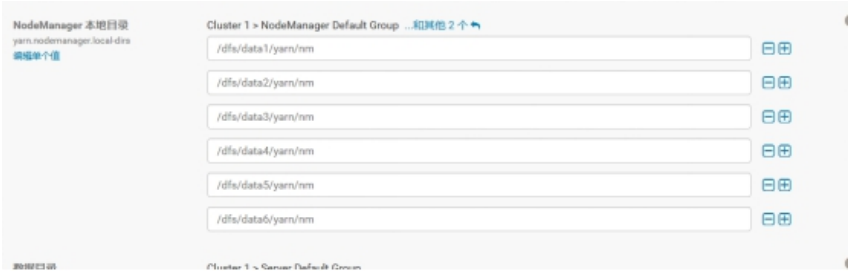
拷贝mysql驱动到oozie jar包（cdh85-29）

```
cd /opt/cloudera/parcels/CDH/lib/oozie/libtools && ln -s /usr/share/java/mysql-connector-java-5.1.44-bin.jar mysql-connector-java.jar
```

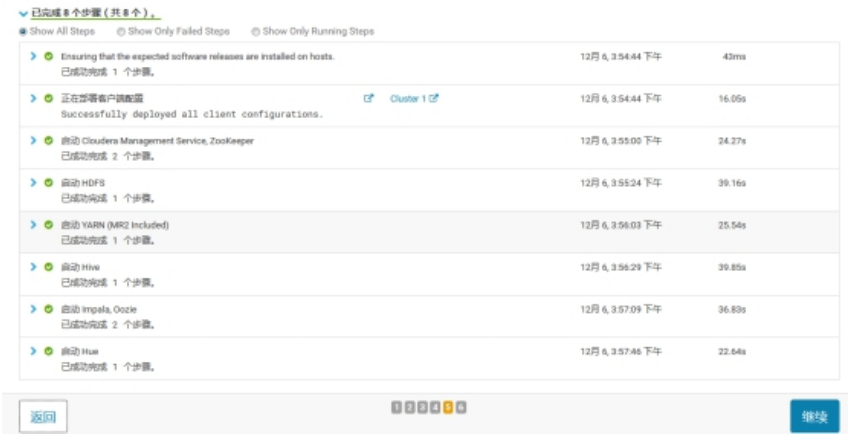
```
cd /opt/cloudera/parcels/CDH/lib/oozie/libserver && ln -s /usr/share/java/mysql-connector-java-5.1.44-bin.jar mysql-connector-java.jar
```

点击继续


点击继续，等待启动。




点击继续即可完成。

四、Kerberos安装

4.1 Kerberos服务端安装

在cdh85-59上安装：

```
yum install -y krb5-server krb5-libs krb5-workstation
```

修改**/etc/krb5.conf**

```
[logging]
  default = FILE:/var/log/krb5libs.log
  kdc = FILE:/var/log/krb5kdc.log
  admin_server = FILE:/var/log/kadmind.log
```

```
[libdefaults]
  dns_lookup_realm = false
  dns_lookup_kdc = false
  ticket_lifetime = 24h
  renew_lifetime = 7d
  forwardable = true
  default_realm = master
  renewable = true

[realms]
  master = {
   kdc = cdh85-59
   admin_server = cdh85-59
  }

[domain_realm]
  .master = master
  master = master
```

修改**/var/kerberos/krb5kdc/kdc.conf**

```
[kdcdefaults]
  kdc_ports = 88
  kdc_tcp_ports = 88

[realms]
  master = {
   #master_key_type = aes256-cts
   acl_file = /var/kerberos/krb5kdc/kadm5.acl
   dict_file = /usr/share/dict/words
max_renewable_life = 30d
   max_life = 30d
   admin_keytab = /var/kerberos/krb5kdc/kadm5.keytab
   supported_enctypes = aes256-cts:normal aes128-cts:normal des3-hmac-sha1:normal
arcfour-hmac:normal camellia256-cts:normal camellia128-cts:normal des-hmac-sha1:normal
des-cbc-md5:normal des-cbc-crc:normal
  }
```

修改**/var/kerberos/krb5kdc/kadm5.acl**

```
*/admin@master  *
```

以上三个文件配置完毕后，只需拷贝krb5.conf到集群中其他机器上即可。

```
scp /etc/krb5.conf cdh81-30:/etc/
...
```

4.2 Kerberos客户端安装

在其他几点上安装：

```
yum install -y krb5-libs krb5-workstation
```

或者在cdh85-29上调用脚本：

```
sh /app/shell/exe_command_on_all_nodes_1.sh "scp /app/krb5-*" "yum -y localinstall krb5*.rpm && rm -rf ~/krb5*.rpm"
```

4.3 关于**AES-256**加密

oracle官网下载jce_policy-8.zip，解压，将local_policy.jar、US_export_policy.jar拷贝 到 $JAVA_HOME/jre/lib/security目录下

4.4 创建数据库

在 cdh85-29 上运行初始化数据库命令。其中 -r 指定对应 realm，初始密码*** $ kdb5_util create -r master -s

出现 Loading random data 的时候另开个终端执行点消耗CPU的命令如 cat /dev/sda > /dev/urandom 可以加快随机数采集。该命令会在 /var/kerberos/krb5kdc/ 目录下创建 principal 数据库。

如果遇到数据库已经存在的提示，可以把 /var/kerberos/krb5kdc/ 目录下的 principal 的相关文件都删除掉。默认的数据库名字都是 principal。可以使用 -d 指定数据库名字。

4.5 启动服务

在cdh85-59上执行如下命令：

```
systemctl enable krb5kdc.service
systemctl enable kadmin.service
systemctl start krb5kdc
systemctl start kadmin
```

4.6 创建**Kerveros**管理员

关于 kerberos 的管理，可以使用 kadmin.local 或 kadmin，至于使用哪个，取决于账户和访问权限：

如果有访问 kdc 服务器的 root 权限，但是没有 kerberos admin 账户，使用 kadmin.local

如果没有访问 kdc 服务器的 root 权限，但是用 kerberos admin 账户，使用 kadmin

在 cdh85-29 上创建远程管理的管理员：

在KDC server主机上，创建一个名为『hadoop』的principal，并将其密码设为『***』。执行命令：

```
[root@cdh85-29 /]# kadmin.local
Authenticating as principal root/admin@master with password.
kadmin.local: addprinc -pw *** hadoop/admin@master
```

通过执行kadmin.local中的listprincs命令可以看到创建了一个名为『hadoop/admin@master』的principal：

```
kadmin.local:  listprincs
K/M@master
hadoop/admin@master
kadmin/admin@master
kadmin/cdh85-29@master
kadmin/changepw@master
kiprop/cdh85-29@master
```

krbtgt/master@master

principal的名字的第二部分是admin,那么该principal就拥administrative privileges
这个账号将会被CDH用来生成其他用户/服务的principal

### 4.7 CDH启用**Kerberos**

在CM的界面上点击启用Kerberos，启用的时候需要确认几个事情：

1.KDC已经安装好并且正在运行

2.将KDC配置为允许renewable tickets with non-zerolifetime

- 在之前修改kdc.conf文件的时候已经添加了kdc_tcp_ports、max_life和max_renewable_life这个三个选项

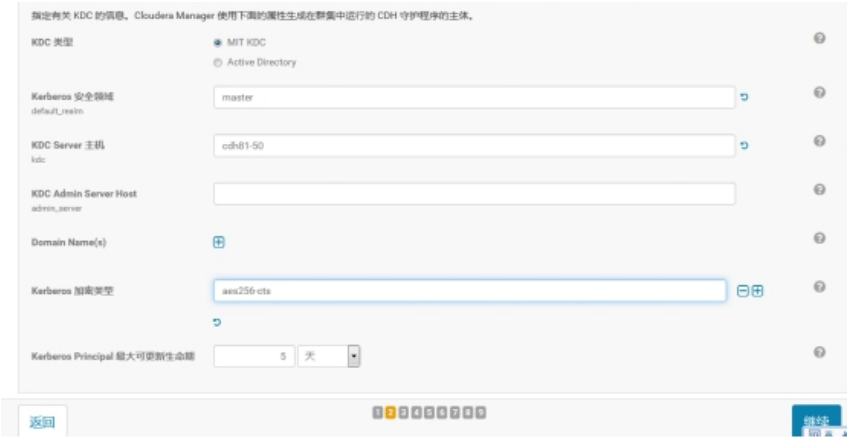
3.在Cloudera Manager Server上安装openldap-clients

PS:为了使Kerberos能够绑定到OpenLDAP服务器，需要创建一个管理员用户和一个principal，并生成keytab文件,所以这里先安装openldap-clients

4.为Cloudera Manager创建一个principal，使其能够有权限在KDC中创建其他的principals，就是上面创建的Kerberos管理员账号.

确定完了之后点击continue，进入下一页进行配置，要注意的是：这里的『Kerberos Encryption Types』必须跟KDC实际支持的加密类型匹配（即kdc.conf中的值）

这里使用了默认的aes256-cts



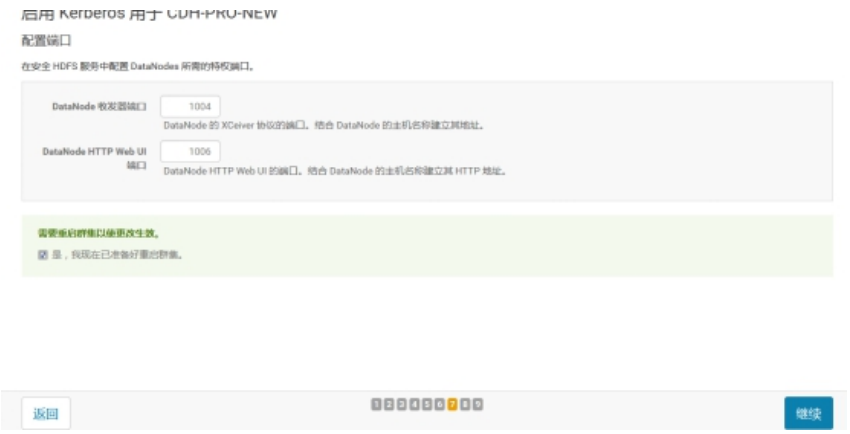


注意，如果勾选了这个选项就可以通过CM的管理界面来部署krb5.conf，但是实际操作过程中发现有些配置仍然需要手动修改该文件并同步

点击continue，进入下一页，输入Cloudera Manager Principal的管理员账号和密码，注意输入账号的时候要使用@前要使用全称，hadoop/admin


点击continue，进入下一页，导入KDC Account Manager Credentials


点击continue，进入下一页，restart cluster并且enable Kerberos




之后CM会自动重启集群服务，启动之后会会提示Kerberos已启用
这个过程中CM会自动在Kerberos的数据库中创建各个节点中各个账户对应的principle
可以使用 kadmin.local -q "list_principals"查看，，格式为username/hostname@XIAOHEI.INFO，例如hdfs/hadoop-10-0-8-124@XIAOHEI.INFO

在CM上启用Kerberos的过程中，CM会自动做以下的事情：
1.集群中有多少个节点，每个账户都会生成对应个数的principal
2.为每个对应的principal创建keytab
3.部署keytab文件到指定的节点中

4.在每个服务的配置文件中加入有关Kerberos的配置

其中包括Zookeeper服务所需要的jaas.conf和keytab文件都会自动设定并读取，如果用户仍然手动修改了Zookeeper的服务，要确保这两个文件的路径和内容正确性

keytab是包含principals和加密principal key的文件

keytab文件对于每个host是唯一的，因为key中包含hostname

keytab文件用于不需要人工交互和保存纯文本密码，实现到kerberos上验证一个主机上的principal

启用之后访问集群的所有资源都需要使用相应的账号来访问，否则会无法通过Kerberos的authenticatin

### 4.8 创建HDFS超级用户

我们使用yarn作为hadoop集群的超级用户，在集群所有节点上创建supergroup组并加入yarn用户。

此时直接用CM生成的principal访问HDFS会失败，因为那些自动生成的principal的密码是随机的，用户并不知道，而通过命令行的方式访问HDFS需要先使用kinit来登录并获得ticket

用户可以通过创建一个yarn@master的principal并记住密码从命令行中访问HDFS

```
# 需要输入两遍密码 kadmin.local -q "addprinc yarn"
```

先使用

```
kinit yarn@master
```

登录之后就可以通过认证并访问HDFS

```
# 查看principals
$ kadmin: list_principals

# 添加一个新的 principal
kadmin: addprinc user1
WARNING: no policy specified for user1@JAVACHEN.COM; defaulting to no policy Enter
password for principal "user1@JAVACHEN.COM": Re-enter password for principal
"user1@JAVACHEN.COM": Principal "user1@JAVACHEN.COM" created.

# 删除 principal
kadmin: delprinc user1
Are you sure you want to delete the principal "user1@JAVACHEN.COM"? (yes/no): yes
Principal "user1@JAVACHEN.COM" deleted. Make sure that you have removed this principal
from all ACLs before reusing.

kadmin: exit
```

### 4.9 确认HDFS可以正常使用

登录到某一个节点后，用kinit来获取yarn用户的credentials

现在用'hadoop fs -ls /'应该能正常输出结果

用kdestroy销毁credentials后，再使用hadoop dfs -ls /会发现报错

获取了yarn的证书后，提交一个PI程序，如果能正常提交并成功运行，则说明Kerberized Hadoop cluster在正常工作

```
hadoop jar /opt/cloudera/parcels/CDH/jars/hadoop-examples.jar pi 10 1000
```

beeline连接hive、impala

**hive:** beeline -u 'jdbc:hive2://cdh85-29:10000/;principal=hive/cdh85-29@master'

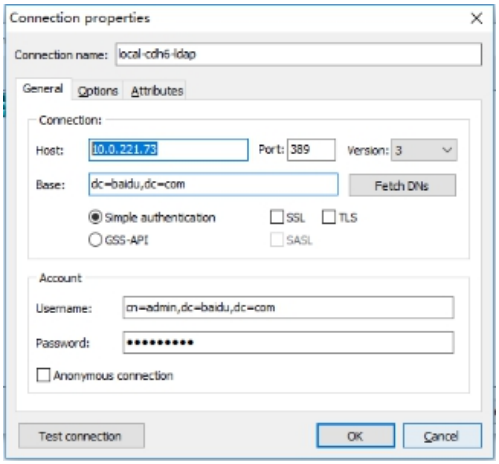
**impala:** beeline -u 'jdbc:hive2://cdh81-51:21050/;principal=impala/cdh81-51@master'

五、LDAP安装

线上安装

https://blog.csdn.net/fanren224/article/details/79707206

测试安装




```
yum  install openldap openldap-servers openldap-clients  compat-openldap

cp /usr/share/openldap-servers/DB_CONFIG.example /var/lib/ldap/DB_CONFIG

chown ldap. /var/lib/ldap/DB_CONFIG

systemctl enable slapd

systemctl start slapd

netstat -tunlp |grep slapd

Slappasswd
```

New password:

Re-enter new password:

{SSHA}Ltmskub54M7W30yGI5Z91+GOODtvUGKe

```
  vim chrootpw.ldif

dn: olcDatabase={0}config,cn=config
changetype: modify
add: olcRootPW
olcRootPW: {SSHA}Ltmskub54M7W30yGI5Z91+GOODtvUGKe



ldapadd -Y EXTERNAL -H ldapi:/// -f chrootpw.ldif
```

我们需要向 LDAP 中导入一些基本的 Schema。这些 Schema 文件位于 /etc/openldap/schema/ 目录中，schema控制着条目拥有哪些对象类和属性

```
ldapadd -Y EXTERNAL -H ldapi:/// -f /etc/openldap/schema/cosine.ldif

ldapadd -Y EXTERNAL -H ldapi:/// -f /etc/openldap/schema/nis.ldif

ldapadd -Y EXTERNAL -H ldapi:/// -f /etc/openldap/schema/inetorgperson.ldif
```

配置 LDAP 的根域（以 dc=baofoo,dc=com 为例）及其管理域：

```
vim  chdomain.ldif


dn: olcDatabase={1}monitor,cn=config
changetype: modify
replace: olcAccess
olcAccess: {0}to * by dn.base="gidNumber=0+uidNumber=0,cn=peercred,cn=external,cn=auth"
    read by dn.base="cn=admin,dc=baofoo,dc=com" read by * none

dn: olcDatabase={2}hdb,cn=config
changetype: modify
replace: olcSuffix
```

```
olcSuffix: dc=baofoo,dc=com

dn: olcDatabase={2}hdb,cn=config
changetype: modify
replace: olcRootDN
olcRootDN: cn=admin,dc=baofoo,dc=com

dn: olcDatabase={2}hdb,cn=config
changetype: modify
add: olcRootPW
olcRootPW: {SSHA}Ltmskub54M7W30yGI5Z91+GOODtvUGKe

dn: olcDatabase={2}hdb,cn=config
changetype: modify
add: olcAccess
olcAccess: {0}to attrs=userPassword,shadowLastChange by
    dn="cn=admin,dc=baofoo,dc=com" write by anonymous auth by self write by * none
olcAccess: {1}to dn.base="" by * read
olcAccess: {2}to * by dn="cn=admin,dc=badiu,dc=com" write by * read
```

```
ldapmodify -Y EXTERNAL -H ldapi:/// -f chdomain.ldif
```

在上述基础上，我们来创建一个叫做 baofoo  company 的组织，并在其下创建一个 admin 的组织角色（该角色内的用户具有管理整个 LDAP 的权限）和 People 和 Group 两个组织单元：

```
dn: dc=baofoo,dc=com
objectClass: top
objectClass: dcObject
objectClass: organization
o: baofoo Company
dc: baofoo

dn: cn=admin,dc=baofoo,dc=com
```

```
objectClass: organizationalRole
cn: admin

dn: ou=People,dc=baofoo,dc=com
objectClass: organizationalUnit
ou: People

dn: ou=Group,dc=baofoo,dc=com
objectClass: organizationalRole
cn: Group
```

```
ldapadd -x -D cn=admin,dc=baofoo,dc=com -W -f basedomain.ldif
```

```
vim ldapuser.ldif

dn: uid=tom,ou=People,dc=baofoo,dc=com
objectClass: inetOrgPerson
objectClass: posixAccount
objectClass: shadowAccount
uid: tom
cn: tom
sn: tom
userPassword: {SSHA}KzC5lnOOVkpXxajXetcyYYq5VcHhfAuM
uidNumber: 1100
gidNumber: 1100
homeDirectory: /home/tom

dn: cn=SRE,ou=Group,dc=baofoo,dc=com
objectClass: posixGroup
cn: SRE
gidNumber: 1100
memberUid: SRE
```

```
ldapadd -X -D cn=admin,dc=baofoo,dc=com -W -f ldapuser.ldif
```

修改密码：

https://blog.csdn.net/developerinit/article/details/76141065

统一账户管理

软件安装

```
yum install -y nss-pam-ldapd openldap-clients
```

配置openLDAP-client

```
cp /etc/nsswitch.conf /etc/nsswitch.conf.old
sed -i '/^passwd:.*$/s//&  ldap/g' /etc/nsswitch.conf
sed -i '/^shadow:.*$/s//&  ldap/g' /etc/nsswitch.conf

cp /etc/openldap/ldap.conf /etc/openldap/ldap.conf.old
cat >> /etc/openldap/ldap.conf <<EOF
BASE dc=baofoo,dc=com
URI ldap://172.20.15.13
ssl off
EOF
```

启用LDAP身份验证机制

```
cp /etc/sysconfig/authconfig /etc/sysconfig/authconfig.old
cat > /etc/sysconfig/authconfig <<EOF
IPADOMAINJOINED=no
USEMKHOMEDIR=no
USEPAMACCESS=no
```

```
CACHECREDENTIALS=yes
USESSSDAUTH=no
USESHADOW=yes
USEWINBIND=no
USEDB=no
USEFPRINTD=yes
FORCESMARTCARD=no
PASSWDALGORITHM=sha512
USELDAPAUTH=yes
USEPASSWDQC=no
IPAV2NONTP=no
USELOCAUTHORIZE=yes
USECRACKLIB=yes
USEIPAV2=no
USEWINBINDAUTH=no
USESMARTCARD=no
USELDAP=yes
USENIS=no
USEKERBEROS=no
USESYSNETAUTH=no
USESSSD=no
USEHESIOD=no
USEMD5=yes
FORCELEGACY=no
EOF
```

nslcd 服务

```
cat >> /etc/nslcd.conf <<EOF
uri ldap://172.20.85.29
base dc=baofoo,dc=com
EOF
```

编辑系统认证文件，保证使用LDAP来认证

```
cp /etc/pam.d/system-auth /etc/pam.d/system-auth.old
cat > /etc/pam.d/system-auth <<EOF
#%PAM-1.0
# This file is auto-generated.
```

```
# User changes will be destroyed the next time authconfig is run.
auth required pam_env.so
auth sufficient pam_fprintd.so
auth sufficient pam_unix.so nullok try_first_pass
auth requisite pam_succeed_if.so uid >= 500 quiet
auth sufficient pam_ldap.so use_first_pass
auth required pam_deny.so
account required pam_unix.so
account sufficient pam_localuser.so
account sufficient pam_succeed_if.so uid < 500 quiet
account [default=bad success=ok user_unknown=ignore] pam_ldap.so
account required pam_permit.so
password requisite pam_cracklib.so try_first_pass retry=3 type=
password sufficient pam_unix.so sha512 shadow nullok try_first_pass use_authtok
password sufficient pam_ldap.so use_authtok
password required pam_deny.so
session optional pam_keyinit.so revoke
session required pam_limits.so
session [success=1 default=ignore] pam_succeed_if.so service in crond quiet use_uid
session required pam_unix.so
session optional pam_ldap.so
session required pam_mkhomedir.so skel=/etc/skel/ umask=0022
EOF
```

在cdh85-29上安装

~~$ yum install -y db4 db4-utils db4-devel cyrus-sasl* krb5-server-ldap~~

安装ldap服务

```
#!/bin/bashecho "install ldap rpm"
yum install -y openldap-servers openldap-clients
cp /usr/share/openldap-servers/DB_CONFIG.example /var/lib/ldap/DB_CONFIG
chown ldap. /var/lib/ldap/DB_CONFIG
systemctl start slapd
systemctl enable slapd
```

有两个文件要复制：slapd的配置文件和数据库文件，将openldap-servers自带的example复制到相应目录：

PS: centos7 slapd.conf.obsolete 并不存在，所以我从centos6 里拷贝了一个过来

```
cp /usr/share/openldap-servers/slapd.conf.obsolete /etc/openldap/slapd.conf
cp /usr/share/openldap-servers/DB_CONFIG.example /var/lib/ldap/DB_CONFIG
```

### 5.2 服务端配置

使用slappasswd创建LDAP管理员密码，这个命令不会直接将密码写入配置，运行slappasswd后输入两次密码，会返回一串密文，复制下这个密文。

```
[root@cdh85-29 ~]# slappasswd
New password:
Re-enter new password:
{SSHA}PL+FAWxVd7uLGcqBCbwaq/ET3yqaQx7E
```

编辑/etc/openldap/slapd.conf，找到"database bdb"，按照自己的需求更改下面的：

```
suffix "dc=baofoo,dc=com" rootdn "cn=admin,dc=baofoo,dc=com" //管理员为rootpw
{SSHA}PL+FAWxVd7uLGcqBCbwaq/ET3yqaQx7E //复制的管理员的密码，也支持明文
```

~~添加一些基本配置，并引入 kerberos 和 openldap 的 schema：~~

~~$ cp /usr/share/doc/krb5-server-ldap-1.15.1/kerberos.schema /etc/openldap/schema/~~

~~在/etc/openldap/slapd.conf加入~~

~~include /etc/openldap/schema/kerberos.schema~~

更改目录权限：

```
chown -R ldap:ldap /etc/openldap
chown -R ldap:ldap /var/lib/ldap
```

### 5.3 测试并生成配置文件

```
rm -rf /etc/openldap/slapd.d/* //删除原文件
systemctl start slapd //生成bdb文件
slaptest -f /etc/openldap/slapd.conf -F /etc/openldap/slapd.d //生成配置文件
chown -R ldap:ldap /etc/openldap/slapd.d
```

### 5.4 配置完成重启服务

```
systemctl restart slapd
systemctl enable slapd //设置开机启动
systemctl list-unit-files slapd.service //查看开机启动状态
```

经过上面的配置后，openldap server就配置好了。

查看状态，验证服务端口：

```
[root@cdh85-29 openldap]# ps aux | grep slapd | grep -v grep
ldap      58094  0.0  0.0 533648  9748 ?        Ssl  10:11   0:00 /usr/sbin/slapd -u
ldap -h ldapi:/// ldap:///
[root@cdh85-29 openldap]# ss -tunlp  | grep :389
```

```
tcp    LISTEN     0      128       *:389                   *:*                   users:
(("slapd",pid=58094,fd=8))
tcp    LISTEN     0      128      :::389                  :::*                   users:
(("slapd",pid=58094,fd=9))
```

查看LDAP数据库结构：

```
[root@cdh85-29 openldap]# ldapsearch -x -H ldap://127.0.0.1 -b 'dc=baofoo,dc=com'
# extended LDIF
#
# LDAPv3
# base <dc=baofoo,dc=com> with scope subtree
# filter: (objectclass=*)
# requesting: ALL
#

# search result
search: 2
result: 32 No such object

# numResponses: 1
```

### 5.5 Kerberos和Ldap集成

为了使Kerberos能够绑定到OpenLDAP服务器，需要创建一个管理员用户和一个principal，并生成keytab文件

设置该文件的权限为LDAP服务运行用户可读（一般为ldap）：

```
kadmin.local -q "addprinc -randkey ldap/cdh85-29@master"

kadmin.local -q "ktadd -k /etc/openldap/ldap.keytab ldap/cdh85-29@master"

chown ldap:ldap /etc/openldap/ldap.keytab && chmod 640 /etc/openldap/ldap.keytab
```

确保LDAP启动时使用上一步中创建的keytab文件，在/etc/sysconfig/ldap增加KRB5_KTNAME配置：

PS: centos7 /etc/sysconfig/ldap 并不存在，所以我从centos6 里拷贝了一个过来

```
export KRB5_KTNAME=/etc/openldap/ldap.keytab
```

重启 systemctl restart slapd

### 5.6 配置并迁移系统用户

配置好的LDAP数据库是空的，需要将系统上的用户导入到LDAP数据库中。需要用migrationtools将系统用户转换为LDAP能识别的ldif文件。

安装migrationtools：

```
yum install -y migrationtools
```

配置migrationtools：

编辑/usr/share/migrationtools/migrate_common.ph ，按需更改下面两行：

```
$DEFAULT_MAIL_DOMAIN = "baofoo.com";
$DEFAULT_BASE = "dc=baofoo,dc=com";
```

生成模板文件：

```
/usr/share/migrationtools/migrate_base.pl > /opt/base.ldif
```

生成ldif文件：

```
/usr/share/migrationtools/migrate_passwd.pl /etc/passwd >/opt/passwd.ldif
/usr/share/migrationtools/migrate_group.pl /etc/group >/opt/group.ldif
```

将生成的ldif导入到LDAP数据库：

```
ldapadd -x -D "cn=admin,dc=baofoo,dc=com" -W -f /opt/base.ldif
ldapadd -x -D "cn=admin,dc=baofoo,dc=com" -W -f /opt/passwd.ldif
ldapadd -x -D "cn=admin,dc=baofoo,dc=com" -W -f /opt/group.ldif
```

### 5.7 LDAP客户端配置

在其他节点上运行

```
yum install openldap-clients -y
```

或者在cdh85-29上调用脚本：

```
sh /app/shell/exe_command_on_all_nodes_1.sh "scp /app/  openldap-clients-2.4.44-5.el7.x86_64.rpm" "yum -y localinstall openldap-clients-2.4.44-5.el7.x86_64.rpm && rm -rf ~/  openldap-clients-2.4.44-5.el7.x86_64.rpm"
```

修改 /etc/openldap/ldap.conf 以下两个配置

```
BASE dc=baofoo,dc=com
URI ldap://cdh85-29
```

然后，运行下面命令测试：

```
#先删除 ticket $ kdestroy
[root@cdh85-29 shell]# ldapsearch -b 'dc=baofoo,dc=com'
SASL/GSS-SPNEGO authentication started
ldap_sasl_interactive_bind_s: Local error (-2)
        additional info: SASL(-1): generic failure: GSSAPI Error: Unspecified GSS failure.  Minor code may provide more information (SPNEGO cannot find mechanisms to negotiate)
```

重新获取 ticket：

```
[root@cdh85-29 shell]# kinit yarn
Password for yarn@master:
[root@cdh85-29 shell]# klist
Ticket cache: FILE:/tmp/krb5cc_0
Default principal: yarn@master

Valid starting       Expires              Service principal
12/08/2017 13:33:58  12/09/2017 13:33:58  krbtgt/master@master
        renew until 12/15/2017 13:33:58
```

```
$ ldapsearch -x -b 'dc=baofoo,dc=com'
#没有报错
# numEntries: 128
```

ldap导出：

```
ldapsearch -x -b 'dc=baofoo,dc=com' > ldapbackup.ldif
```

ldap导入：

```
ldapadd -x -D cn=admin,dc=baofoo,dc=com -W -f ldapbackup.ldif
```

### 5.8 配置HIVE集成LDAP

在hive-site.xml中加入以下配置：

```
<property>
<name>hive.server2.authentication</name>
<value>LDAP</value>
</property>
<property>
<name>hive.server2.authentication.ldap.url</name>
<value>ldap://cdh85-29</value>
</property>
<property>
<name>hive.server2.authentication.ldap.baseDN</name>
<value>ou=people,dc=baofoo,dc=com</value>
</property>
```

重启Hive和Yarn服务,进入beeline测试：

LDAP认证：

```
[root@cdh85-29 ~]# beeline
Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=512M; support was removed in 8.0
Java HotSpot(TM) 64-Bit Server VM warning: Using incremental CMS is deprecated and will likely be removed in a future release
Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=512M; support was removed in 8.0
Beeline version 1.1.0-cdh5.12.1 by Apache Hive
beeline> !connect jdbc:hive2://cdh85-29:10000/default
scan complete in 1ms
```

```
Connecting to jdbc:hive2://cdh85-29:10000/default
Enter username for jdbc:hive2://cdh85-29:10000/default: yarn
Enter password for jdbc:hive2://cdh85-29:10000/default: ***********
Connected to: Apache Hive (version 1.1.0-cdh5.12.1)
Driver: Hive JDBC (version 1.1.0-cdh5.12.1)
Transaction isolation: TRANSACTION_REPEATABLE_READ
0: jdbc:hive2://cdh85-29:10000/default>
```

Kerberos认证：

```
[root@cdh85-29 ~]# kinit yarn
Password for yarn@master:
[root@cdh85-29 ~]# klist
Ticket cache: FILE:/tmp/krb5cc_0
Default principal: yarn@master

Valid starting       Expires              Service principal
12/08/2017 15:18:53  12/09/2017 15:18:53  krbtgt/master@master
        renew until 12/15/2017 15:18:53
[root@cdh85-29 ~]# beeline -u 'jdbc:hive2://cdh85-29:10000/;principal=hive/cdh85-29@master'
Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=512M; support was
removed in 8.0
Java HotSpot(TM) 64-Bit Server VM warning: Using incremental CMS is deprecated and will
likely be removed in a future release
Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=512M; support was
removed in 8.0
scan complete in 2ms
Connecting to jdbc:hive2://cdh85-29:10000/;principal=hive/cdh85-29@master
Connected to: Apache Hive (version 1.1.0-cdh5.12.1)
Driver: Hive JDBC (version 1.1.0-cdh5.12.1)
Transaction isolation: TRANSACTION_REPEATABLE_READ
Beeline version 1.1.0-cdh5.12.1 by Apache Hive
0: jdbc:hive2://cdh85-29:10000/>
```

### 5.9 配置IMPALA集成LDAP

Impala中可以同时使用Kerberos+LDAP的认证方式，所以在已经启用Kerberos的情况下启用LDAP可以正常工作

在Impala配置页中：

- 启用 LDAP 身份验证选项设置为true
- 启用 LDAP TLS 选项设置为true
- LDAP URL 设置为ldap://cdh85-29
- LDAP BaseDN 设置为ou=people,dc=baofoo,dc=com

重启Impala服务

在chd81-51上执行，使用impala-shell测试LDAP账号：

```
[root@cdh81-51 ~]# impala-shell -l -u yarn --auth_creds_ok_in_clear
Starting Impala Shell using LDAP-based authentication
LDAP password for yarn:
Connected to cdh81-51:21000
```

```
Server version: impalad version 2.9.0-cdh5.12.1 RELEASE (build 5131a031f4aa38c1e50c430373c55ca53e0517b9)
********************************************************************************
Welcome to the Impala shell.
(Impala Shell v2.9.0-cdh5.12.1 (5131a03) built on Thu Aug 24 09:27:32 PDT 2017)
To see more tips, run the TIP command.
********************************************************************************
\nLDAP authentication is enabled, but the connection to Impala is not secured by TLS.
ALL PASSWORDS WILL BE SENT IN THE CLEAR TO IMPALA.
[cdh81-51:21000] >
```

使用beeline测试LDAP账号：

```
beeline -u "jdbc:hive2://cdh81-51:21050/default;" -n yarn -p 密码
```

### 5.10 配置HUE集成LDAP

在Hue中配置LDAP可以让Hue直接使用LDAP所管理的账号而不必在Hue中重新管理

在Hue的配置页面中修改

- 身份验证后端/backend为desktop.auth.backend.LdapBackend
- 登录时创建 LDAP 用户/create_users_on_login 设置为True
- 修改ldap_url=ldap://cdh85-29，ldap_username_pattern=uid=<username>,ou=people,dc=baofoo,dc=com
- 使用搜索绑定身份验证/search_bind_authentication 设置为False

滚动重启步骤.png