## 部署系统环境

|  |  |
| --- | --- |
| 操作系统 | CentOS 6.5 |
| ambari | ambari-server-2.6.0.0 |
| jdk | jdk1.8.0\_151 |
| mysql | 5.6.25 |
| scala | scala-2.11.8 |
| Hadoop | HDP-2.6.0.3 |

## 系统部署规划

|  |  |  |  |
| --- | --- | --- | --- |
| 主机名 | IP | 域名 |  |
| byxf-test-bigdata-01 | 172.17.16.27 | www.txy.hdp01.com | 管理节点 |
| byxf-test-bigdata-02 | 172.17.16.5 | www.txy.hdp01.com | 数据节点 |
| byxf-test-bigdata-03 | 172.17.16.33 | www.txy.hdp01.com | 数据节点 |
| byxf-test-bigdata-04 | 172.17.16.35 | www.txy.hdp01.com | 数据节点 |

## 集群安装前的环境检查和配置

## 禁止防火墙和selinux

|  |
| --- |
| [root@byxf-test-bigdata-01 ~]# service iptables status  iptables: Firewall is not running.  [root@byxf-test-bigdata-01 ~]# getenforce  Disabled |

|  |
| --- |
| [root@byxf-test-bigdata-02 ~]# service iptables status  iptables: Firewall is not running.  [root@byxf-test-bigdata-02 ~]# getenforce  Disabled |

|  |
| --- |
| [root@byxf-test-bigdata-03 ~]# service iptables status  iptables: Firewall is not running.  [root@byxf-test-bigdata-03 ~]# getenforce  Disabled |

|  |
| --- |
| [root@byxf-test-bigdata-04 ~]# service iptables status  iptables: Firewall is not running.  [root@byxf-test-bigdata-04 ~]# getenforce  Disabled |
| 如果没有  [root@byxf-test-bigdata-03 ~]# cat /etc/selinux/config  # 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 ##设置 重启服务器生效  # SELINUXTYPE= can take one of these two values:  # targeted - Targeted processes are protected,  # mls - Multi Level Security protection.  SELINUXTYPE=targeted |

## 时钟同步

所有节点的系统时间要与当前时间保持一致，否则集群运行会出现异常。由于本次实验在腾讯云虚机安装，服务器本身时间已经同步，故不需要同步时间。

|  |
| --- |
| [root@byxf-test-bigdata-01 ~]# date  Fri Nov 23 16:39:57 CST 2018 |

|  |
| --- |
| [root@byxf-test-bigdata-02 ~]# date  Fri Nov 23 16:39:57 CST 2018 |

|  |
| --- |
| [root@byxf-test-bigdata-03 ~]# date  Fri Nov 23 16:39:57 CST 2018 |

|  |
| --- |
| [root@byxf-test-bigdata-04 ~]# date  Fri Nov 23 16:39:57 CST 2018 |

如果不同步

|  |
| --- |
| [root@byxf-test-bigdata-04 ~]# yum install ntp  [root@byxf-test-bigdata-04 ~]# ntpdate pool.ntp.org |

## 安装jdk、scala

byxf-test-bigdata-01 byxf-test-bigdata-02 byxf-test-bigdata-03 byxf-test-bigdata-04每台服务器都执行一次

|  |
| --- |
| [root@byxf-test-bigdata-01 data]# yum install sysstat openssl\* -y && cd /usr/local  上传jdk1.8.0\_151.tar scala-2.11.8.tar  [root@byxf-test-bigdata-01 local]# tar xvf jdk1.8.0\_151.tar ###观察到小于这个版本JDK都行  [root@byxf-test-bigdata-01 local]# tar xvf scala-2.11.8.tar |

|  |
| --- |
| ##配置环境变量-添加下面两行  export JAVA\_HOME=/usr/local/jdk1.8.0\_151  export PATH=$JAVA\_HOME/bin:/usr/local/scala-2.11.8/bin:$PATH  [root@ byxf-test-bigdata-01 local]# source /etc/profile  ###验证是否生效  [root@ byxf-test-bigdata-01 local]# java -version  java version "1.8.0\_151"  Java(TM) SE Runtime Environment (build 1.8.0\_151-b12)  Java HotSpot(TM) 64-Bit Server VM (build 25.151-b12, mixed mode)  [root@ byxf-test-bigdata-01 local]# java -version  Scala code runner version 2.11.8 -- Copyright 2002-2016, LAMP/EPFL  至此组件安装成功 |

以此类推。

## 安装MySQL(管理节点安装配置即可)

|  |
| --- |
| 上传mysql.tar 至/usr/local  [root@byxf-test-bigdata-01 local] tar xvf mysql.tar  [root@ byxf-test-bigdata-01 local]# vi /etc/profile  export PATH=$JAVA\_HOME/bin:/usr/local/scala-2.11.8/bin:/usr/local/mysql/bin:$PATH  [root@ byxf-test-bigdata-01 local]# source /etc/profile  [root@ byxf-test-bigdata-01 local]# mysql ###验证  mysql mysqlbug  [root@byxf-test-bigdata-01 home]# groupadd mysql  [root@byxf-test-bigdata-01 home]# useradd -g mysql mysql  [root@byxf-test-bigdata-01 mysql]# mkdir /home/mysql/data && chown mysql.mysql /home/mysql/data  [root@byxf-test-bigdata-01 scripts]#cd /usr/local/mysql/scripts  [root@byxf-test-bigdata-01 scripts]# ./mysql\_install\_db --basedir=/usr/local/mysql/ --datadir=/home/mysql/data --user=mysql  [root@byxf-test-bigdata-01 scripts]# mkdir /var/run/mysqld -p  [root@byxf-test-bigdata-01 scripts]# chown mysql.mysql /var/run/mysqld/  [root@byxf-test-bigdata-01 scripts]# /usr/local/mysql/bin/mysqld\_safe --datadir=/home/mysql/data/ --user=mysql &  [root@byxf-test-bigdata-01 scripts]# mysql -uroot -p -S /var/lib/mysql/mysql.sock  mysql> create database ambari;  Query OK, 1 row affected (0.00 sec)  mysql> grant all on ambari.\* to ambari@'localhost' identified by 'byxf2018';  Query OK, 0 rows affected (0.00 sec)  mysql> grant all on ambari.\* to ambari@'%' identified by 'byxf2018';  Query OK, 0 rows affected (0.00 sec)  mysql> flush privileges;  Query OK, 0 rows affected (0.00 sec) |

## 配置hosts<域名解析>

编辑byxf-test-bigdata-01 byxf-test-bigdata-02 byxf-test-bigdata-03 byxf-test-bigdata-04 /etc/hosts 示例：

|  |
| --- |
| [ambari@byxf-test-bigdata-01 .ssh]$ cat /etc/hosts  # Your system has configured 'manage\_etc\_hosts' as True.  # As a result, if you wish for changes to this file to persist  # then you will need to either  # a.) make changes to the master file in /etc/cloud/templates/hosts.redhat.tmpl  # b.) change or remove the value of 'manage\_etc\_hosts' in  # /etc/cloud/cloud.cfg or cloud-config from user-data  #  # The following lines are desirable for IPv4 capable hosts  #127.0.0.1 VM\_16\_27\_centos VM\_16\_27\_centos  127.0.0.1 localhost.localdomain localhost  127.0.0.1 localhost4.localdomain4 localhost4  # The following lines are desirable for IPv6 capable hosts  #::1 VM\_16\_27\_centos VM\_16\_27\_centos  ::1 localhost.localdomain localhost  ::1 localhost6.localdomain6 localhost6  ######添加域名解析  172.17.16.27 www.byxf.hdp01.com byxf-test-bigdata-01  172.17.16.5 www.byxf.hdp02.com byxf-test-bigdata-02  172.17.16.33 www.byxf.hdp03.com byxf-test-bigdata-03  172.17.16.35 www.byxf.hdp04.com byxf-test-bigdata-04 |

## 配置ambari用户免密登录

编辑byxf-test-bigdata-01 byxf-test-bigdata-02 byxf-test-bigdata-03 byxf-test-bigdata-04 /

Ambari 用户 示例

|  |
| --- |
| [root@byxf-test-bigdata-01 ~]# useradd -g root ambari ##添加ambri用户  [root@byxf-test-bigdata-01 ~]# passwd ambari  Changing password for user ambari.  New password:  BAD PASSWORD: it is based on a dictionary word  BAD PASSWORD: is too simple  Retype new password:  passwd: all authentication tokens updated successfully.  [root@byxf-test-bigdata-01 ~]#  [root@byxf-test-bigdata-01 ~]# su - ambari #####su – ambari用户下  [ambari@byxf-test-bigdata-01 ~]$ ssh-keygen -t rsa  Generating public/private rsa key pair.  Enter file in which to save the key (/home/ambari/.ssh/id\_rsa):  Created directory '/home/ambari/.ssh'.  Enter passphrase (empty for no passphrase):  Enter same passphrase again:  Your identification has been saved in /home/ambari/.ssh/id\_rsa.  Your public key has been saved in /home/ambari/.ssh/id\_rsa.pub.  The key fingerprint is:  17:36:3a:01:15:d3:69:e4:f3:bc:b7:bf:25:9d:85:93 ambari@byxf-test-bigdata-01  The key's randomart image is:  +--[ RSA 2048]----+  | ..++.. |  | . o+ |  | ..\* |  | + \* o |  | S . o E .|  | o . oo|  | . o.o|  | . o.|  | .oo|  +-----------------+  [ambari@byxf-test-bigdata-01 ~]$ ls  [ambari@byxf-test-bigdata-01 ~]$ vi ~/.ssh/authorized\_keys  ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEAsuBsDk5pSckaYr1tsfsFvX3PfvqB+LF+qgci3Nm7sG8fPnRm5Qv2UTs4USu1zgvk78vNPTkVP3jGegKL3hIzerfTVznrzARWHLU+wKwwgP/7Qq6iSgFyun9tjVYKc1rPy2sKd8zS62rR8pG0lZFI+YdQOt1tpR8voNGSsl+57l1MF+yu+MN03U6v35aEpQauy+7lQpgjKKKkoh0+8tcKzEBxp7P/WwZIZK2HB925MjhBbaPa0ZT2+HL2uZATCwdpKSIvOhp5frC4kiF5cLWaVTFDlGb4nsjA7rtC1WPJ57kQGijhCk1imvL5XyLdAQqe647Z62v7qv8vYtbGFI3kRw== ambari@byxf-test-bigdata-01  ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEAr6yERzoNDW3mJdHZuaJkGrF/LoTDEhh5EVHH0Ad+G3MVUTnYu57g65WjElpUKUXd9pJSMJ8RW8o5idr/dQZ9kNJ56CNvvtkNpTi9IlMHfOWpkovBxXPobzfZ4fbsH2hlc5VKIWfQbmltMJjqEPw81xbqTyNXKW0S0/mp4MOP1j55vq+JadsJxy+W60qzE1zc/uVPny6JM0qsrXC5J5ETuHxQSmOWImwtH8rm8BQ7m54+2+TpNqplrFsjKfAxpsa/PgvqhJLH+vcR9sER1zMovfmxAveC2evsyslylhtIoBQtYxjTrxRqckuoiGxfq0/kAQWjSJVVEx60uD3jJTTtmQ== ambari@byxf-test-bigdata-02  ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEAtOCBGUxJvHKt9M4gb2sf9H078uE6ezlADx1xA22ONYoFmv5fIDHcn3pzbA/oClX5hTAOG9Ej6K05EePljcFQkpC3kjcnwAdzVqxXGn65HR3BjzbGjG6oEfb1N4BqGtfMG7jSHOTPgP7Dv6NKM9vQIRWhKE04wT0osqFsw6yxl5BXZJzT1ed8z8f/UOPQebKiIrdVEwYmWcoqNL+pdZZWt1Hr+sHsRcMEkpKbbsU6dB/+B8mOyRjKScO0QIytDSn60Jw6q/f41eHQQ/CkDC7ioKR3aQFmgy9u5twoLmxf8LxSDVbAFc7dR/puRUAjov1BZK2LzDqz6VvEoaWE8mFqhQ== ambari@byxf-test-bigdata-03  ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEAr0iC1y4PRXDsESEyxvZlJ3VzArbCXXBaZu5+2eyxqr8b/eCm4BbZqG5QbTUaPXnYet4Xt79IsOYcx/VzhxGsVlZ8HmStzEejk34kglAgSMhRh8b1hl9iOzVYUZAE9l7Tl6KSZX31Yy6jRoDIcDWBLQ1dLZmv9mb2iRIF2LxKCkWldSVhlT2BMbbaONAa48PTc79OE0g3GBJYzPnxdvF1VU9/k9H6QT4Hx/tJXizTuCuYmKRPy2TVt8ZNjMNRbqk9s796c54G6PvKfaeWvGPc+JV9yyneoNvUtuDCpr10+HQM2zLVPKsP5ds2rVUFAUN7ajacHq1joGfGT9E741GDNw== ambari@byxf-test-bigdata-04 |

## Yum源配置

1 现在使用已经配置好的yum源----文档后续补充。

2 在/etc/yum.repo.d/添加一个源 每台服务器都需要配置

[root@byxf-test-bigdata-03 yum.repos.d]# vi ambari.repo

#VERSION\_NUMBER=2.6.0.0-267

[ambari-2.6.0.0]

name=ambari Version - ambari-2.6.0.0

baseurl=http://public-repo-1.hortonworks.com/ambari/centos6/2.x/updates/2.6.0.0

gpgcheck=1

gpgkey=http://public-repo-1.hortonworks.com/ambari/centos6/2.x/updates/2.6.0.0/RPM-GPG-KEY/RPM-GPG-KEY-Jenkins

enabled=1

priority=1

## 配置java连接mysql驱动

|  |
| --- |
| 上传mysql-connector-java-5.1.45-bin.jar至172.17.16.27的/usr/share/java/  [root@byxf-test-bigdata-01 java]# ls ##没有java的目录创建一个  mysql-connector-java-5.1.45-bin.jar  [root@byxf-test-bigdata-01 java]# pwd  /usr/share/java |

## 安装ambari-server

在172.17.16.27 管理节点安装ambari-server 其他服务器不需要配置

|  |
| --- |
| [root@byxf-test-bigdata-01 local]# yum install postgresql-server –y  [root@byxf-test-bigdata-01 local]# rpm -ivh ambari-server-2.6.0.0-267.x86\_64.rpm  warning: ambari-server-2.6.0.0-267.x86\_64.rpm: Header V4 RSA/SHA1 Signature, key ID 07513cad: NOKEY  Preparing... ########################################### [100%]  1:ambari-server ########################################### [100%] |

配置ambari-server

|  |
| --- |
| [root@byxf-test-bigdata-01 local]# ambari-server setup --jdbc-db=mysql --jdbc-driver=/usr/share/java/mysql-connector-java-5.1.45-bin.jar  Using python /usr/bin/python  Setup ambari-server  Copying /usr/share/java/mysql-connector-java-5.1.45-bin.jar to /var/lib/ambari-server/resources  If you are updating existing jdbc driver jar for mysql with mysql-connector-java-5.1.45-bin.jar. Please remove the old driver jar, from all hosts. Restarting services that need the driver, will automatically copy the new jar to the hosts.  JDBC driver was successfully initialized.  Ambari Server 'setup' completed successfully.  [root@byxf-test-bigdata-01 local]# ambari-server setup -j $JAVA\_HOME  Using python /usr/bin/python  Setup ambari-server  Checking SELinux...  SELinux status is 'disabled'  Customize user account for ambari-server daemon [y/n] (n)? y  Enter user account for ambari-server daemon (root):  Adjusting ambari-server permissions and ownership...  Checking firewall status...  Checking JDK...  WARNING: JAVA\_HOME /usr/local/jdk1.8.0\_151 must be valid on ALL hosts  WARNING: JCE Policy files are required for configuring Kerberos security. If you plan to use Kerberos,please make sure JCE Unlimited Strength Jurisdiction Policy Files are valid on all hosts.  Completing setup...  Configuring database...  Enter advanced database configuration [y/n] (n)? y  Configuring database...  ==============================================================================  Choose one of the following options:  [1] - PostgreSQL (Embedded)  [2] - Oracle  [3] - MySQL / MariaDB  [4] - PostgreSQL  [5] - Microsoft SQL Server (Tech Preview)  [6] - SQL Anywhere  [7] - BDB  ==============================================================================  Enter choice (1): 3  Hostname (localhost): 172.17.16.27  Port (3306):  Database name (ambari):  Username (ambari):  Enter Database Password (bigdata):  Re-enter password:  Configuring ambari database...  Configuring remote database connection properties...  WARNING: Before starting Ambari Server, you must run the following DDL against the database to create the schema: /var/lib/ambari-server/resources/Ambari-DDL-MySQL-CREATE.sql  Proceed with configuring remote database connection properties [y/n] (y)? y  Extracting system views...  ...ambari-admin-2.6.0.0.267.jar  ........  Adjusting ambari-server permissions and ownership...  Ambari Server 'setup' completed successfully. |

执行基础SQL

|  |
| --- |
| mysql -uroot -p -S /var/lib/mysql/mysql.sock  Enter password:  Welcome to the MySQL monitor. Commands end with ; or \g.  Your MySQL connection id is 2  Server version: 5.6.25 Source distribution  Copyright (c) 2000, 2015, Oracle and/or its affiliates. All rights reserved.  Oracle is a registered trademark of Oracle Corporation and/or its  affiliates. Other names may be trademarks of their respective  owners.  Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  mysql> use ambari  Database changed  mysql> show tables;  Empty set (0.00 sec)  mysql> source /var/lib/ambari-server/resources/Ambari-DDL-MySQL-CREATE.sql;  mysql> exit; |

配置/etc/ambari-server/conf/ambari.properties

|  |
| --- |
| [root@byxf-test-bigdata-01 local]# vi /etc/ambari-server/conf/ambari.properties  追加：server.jdbc.driver.path=/usr/share/java/mysql-connector-java-5.1.45-bin.jar |

启动ambari-server

|  |
| --- |
| [root@byxf-test-bigdata-01 local]# ambari-server start  Using python /usr/bin/python  Starting ambari-server  Ambari Server running with administrator privileges.  Organizing resource files at /var/lib/ambari-server/resources...  Ambari database consistency check started...  Server PID at: /var/run/ambari-server/ambari-server.pid  Server out at: /var/log/ambari-server/ambari-server.out  Server log at: /var/log/ambari-server/ambari-server.log  Waiting for server start.............................  Server started listening on 8080  DB configs consistency check: no errors and warnings were found.  Ambari Server 'start' completed successfully. |

至此ambari-server 安装成功

## 安装ambari-agent

在4台安装服务器上都安装agent 以此安装

|  |
| --- |
| [root@byxf-test-bigdata-02 local]# rpm -ivh ambari-agent-2.6.0.0-267.x86\_64.rpm  warning: ambari-agent-2.6.0.0-267.x86\_64.rpm: Header V4 RSA/SHA1 Signature, key ID 07513cad: NOKEY  Preparing... ########################################### [100%]  1:ambari-agent ########################################### [100%] |

配置ambari-agent访问管理节点域名；每台服务器均需要配置，以此配置

|  |
| --- |
| [root@byxf-test-bigdata-01 local]# vi /etc/ambari-agent/conf/ambari-agent.ini  [server]  hostname=www.byxf.hdp01.com  url\_port=8440  secured\_url\_port=8441  connect\_retry\_delay=10  max\_reconnect\_retry\_delay=30 |

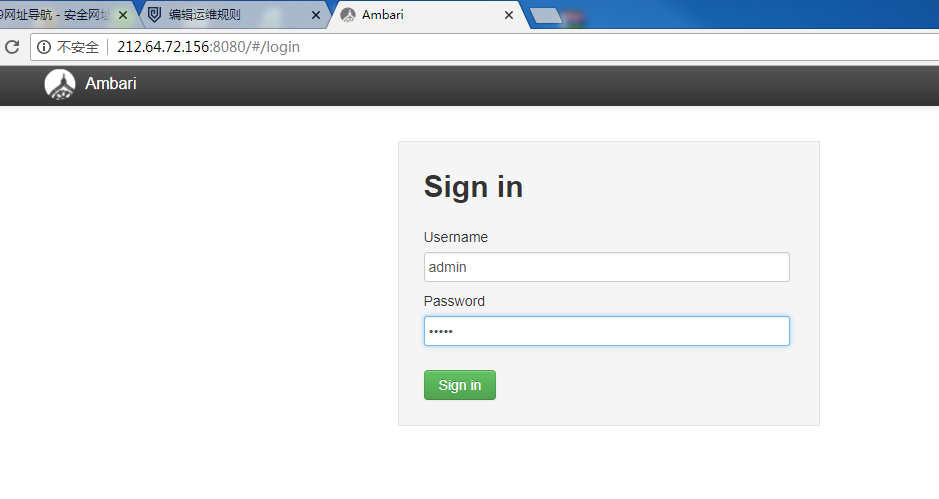
启动ambari-agent

|  |
| --- |
| [root@byxf-test-bigdata-01 local]# ambari-agent start  Verifying Python version compatibility...  Using python /usr/bin/python  Checking for previously running Ambari Agent...  Checking ambari-common dir...  Starting ambari-agent  Verifying ambari-agent process status...  Ambari Agent successfully started ###启动成功  Agent PID at: /var/run/ambari-agent/ambari-agent.pid  Agent out at: /var/log/ambari-agent/ambari-agent.out  Agent log at: /var/log/ambari-agent/ambari-agent.log |

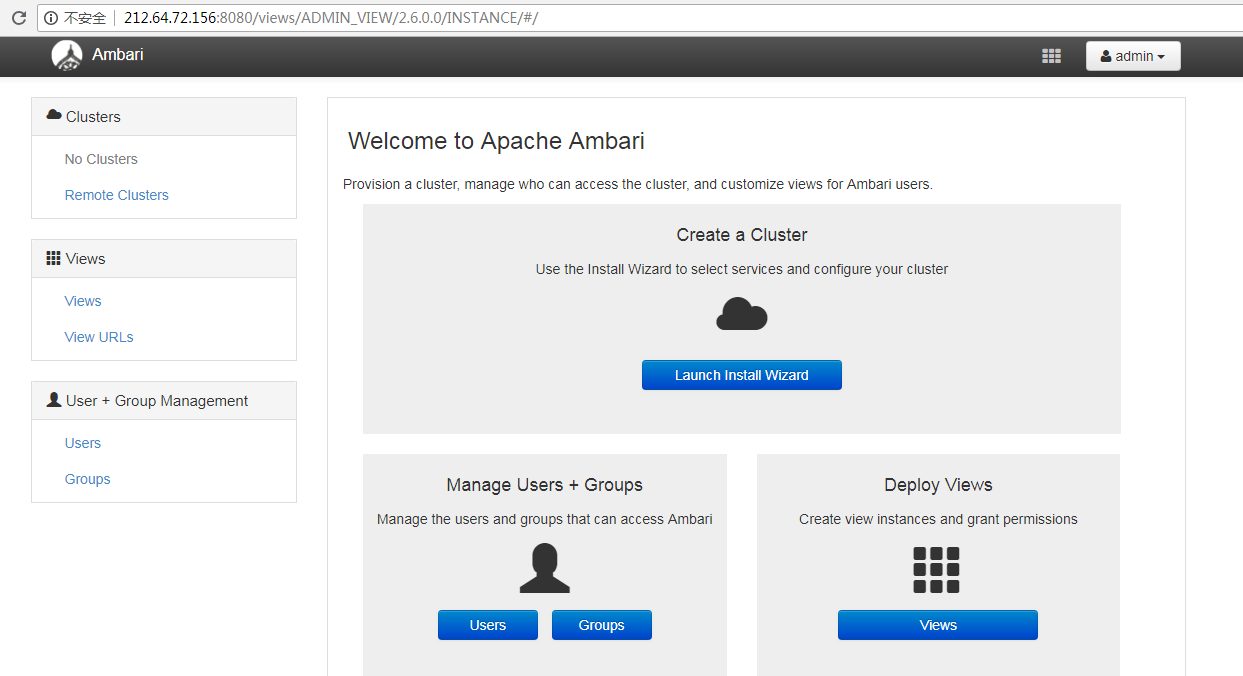
**至此后台的ambari 安装完成**

## 页面安装hadoop集群

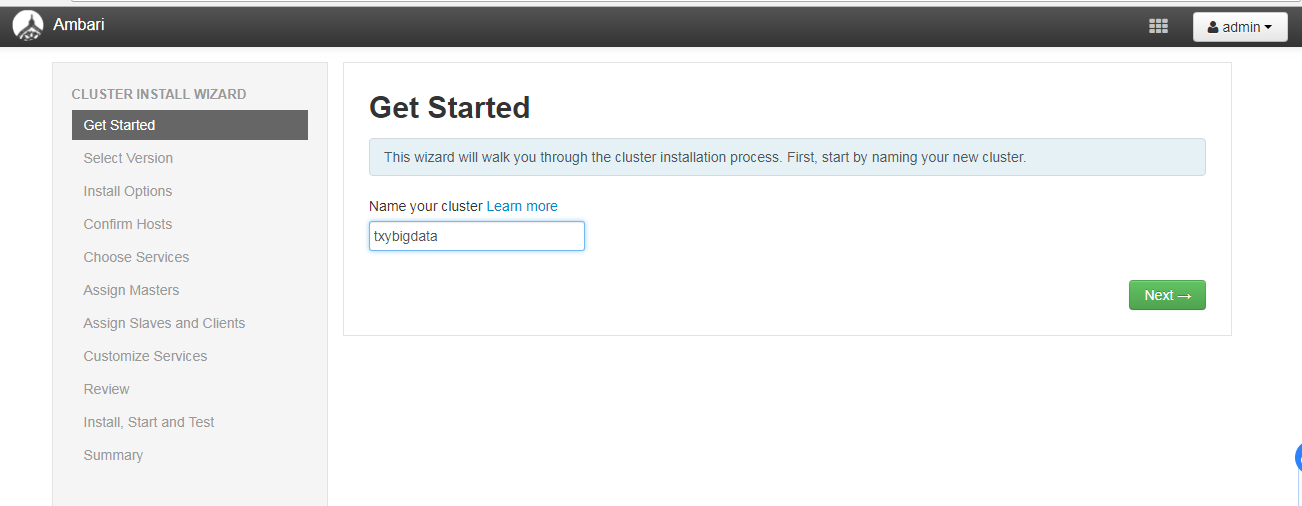
登录<http://212.64.72.156:8080> 初始密码：admin / admin 因为这里是腾讯云，必须外网访问；其他环境安装可以访问本机地址



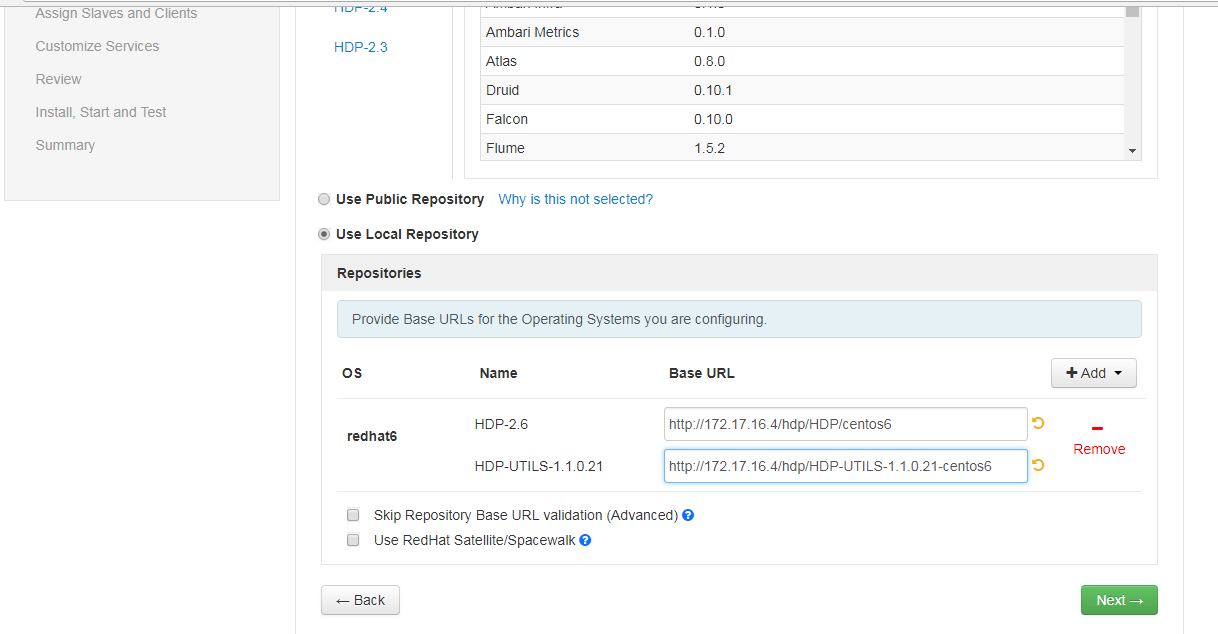
进入安装界面 点击launch install wizard



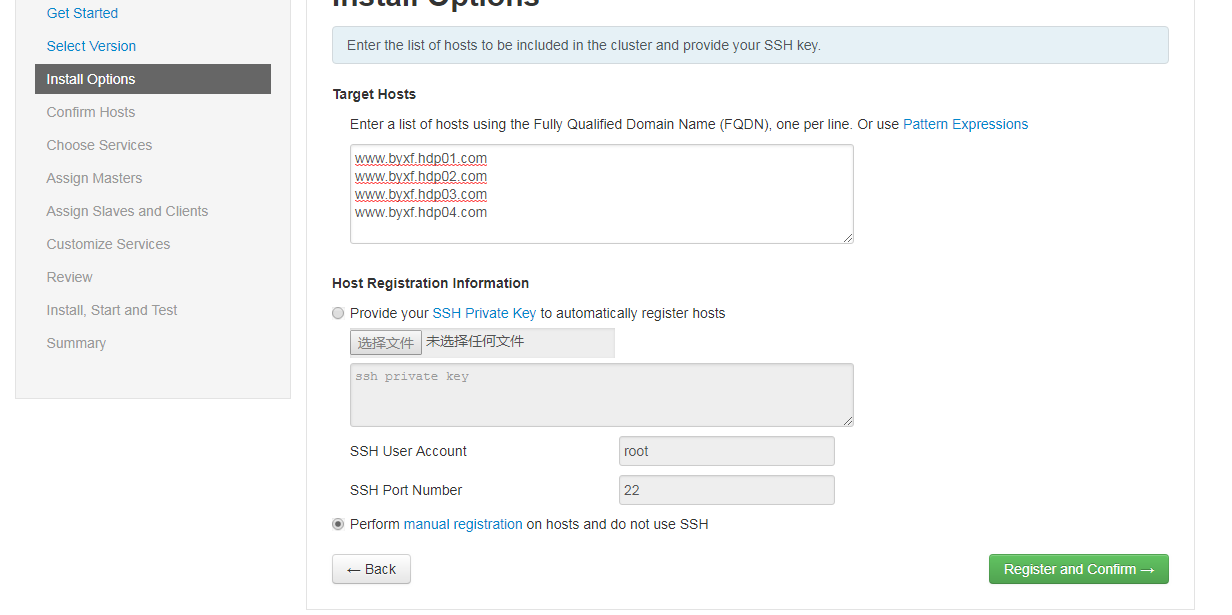
设置集群名字: txybigdata



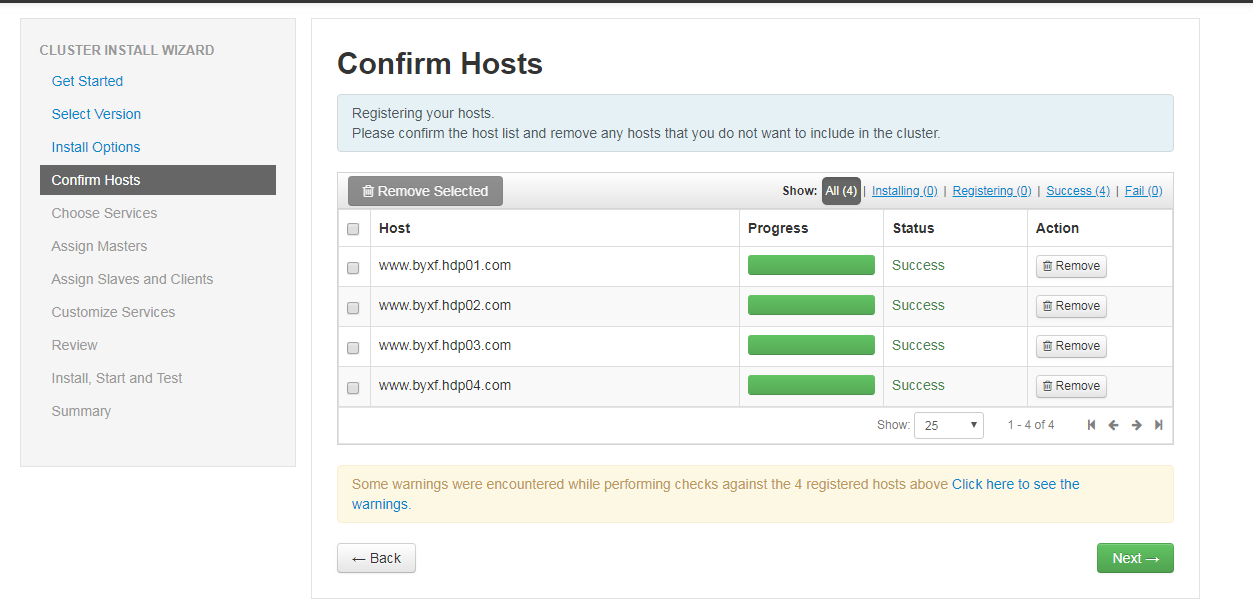
配置**Use Local Repository 配置地址**



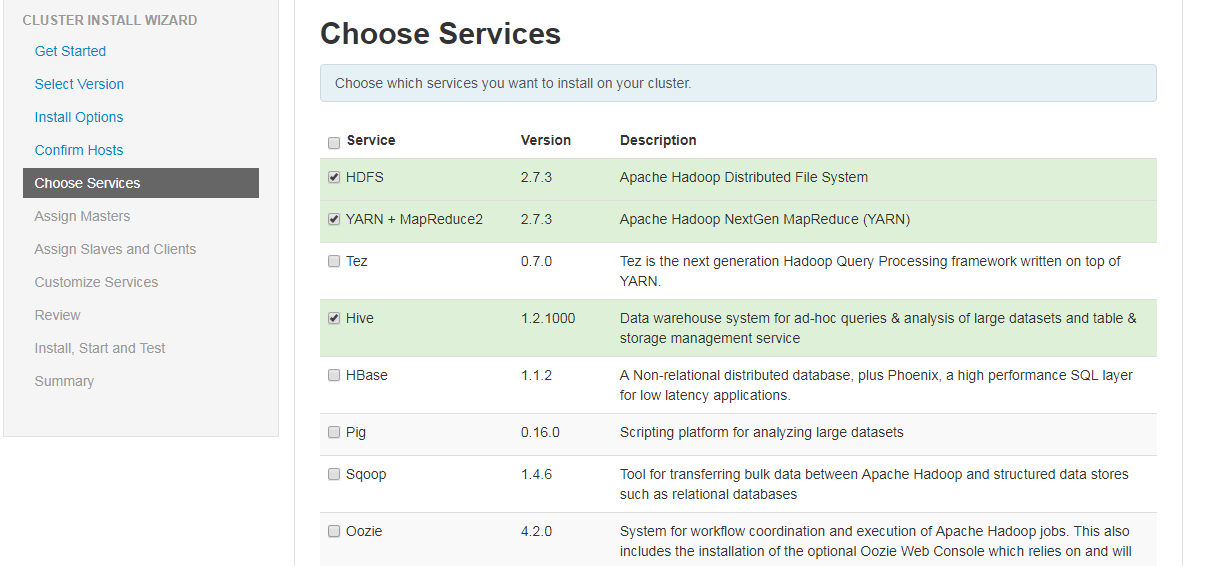
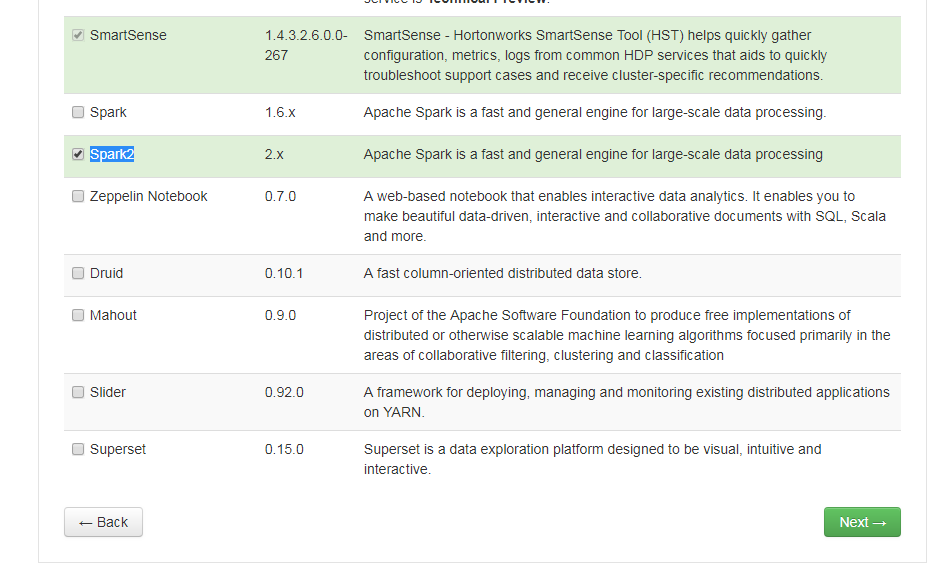
配置host 选择Perform [manual registration](javascript:void(null)) on hosts and do not use SSH



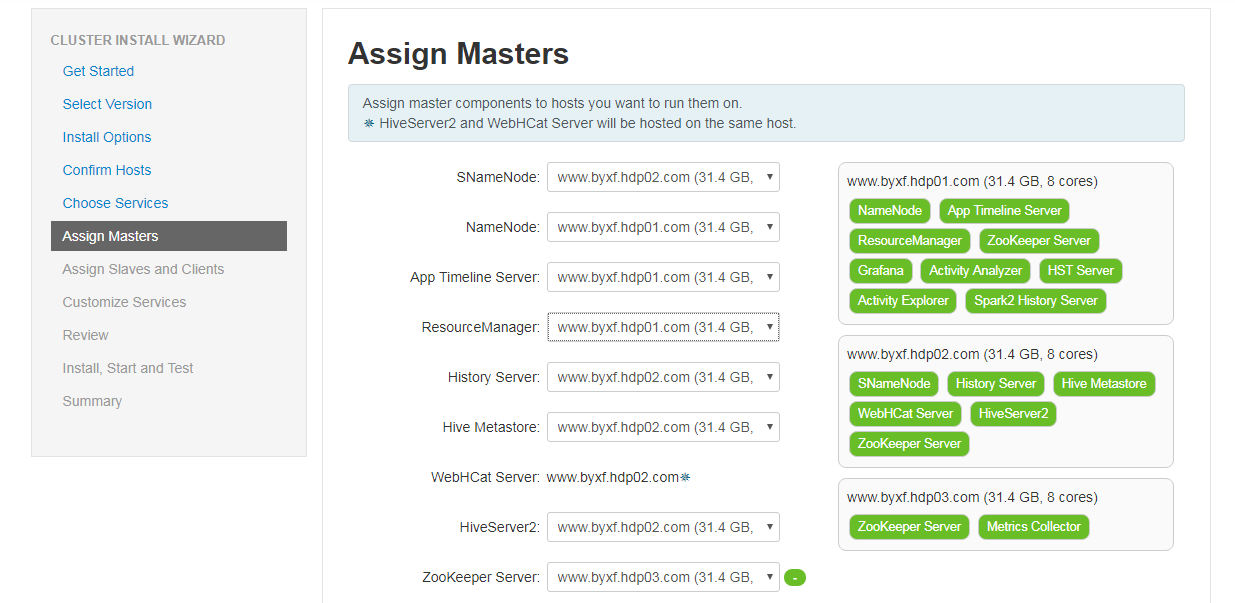
完成agent注册管理节点

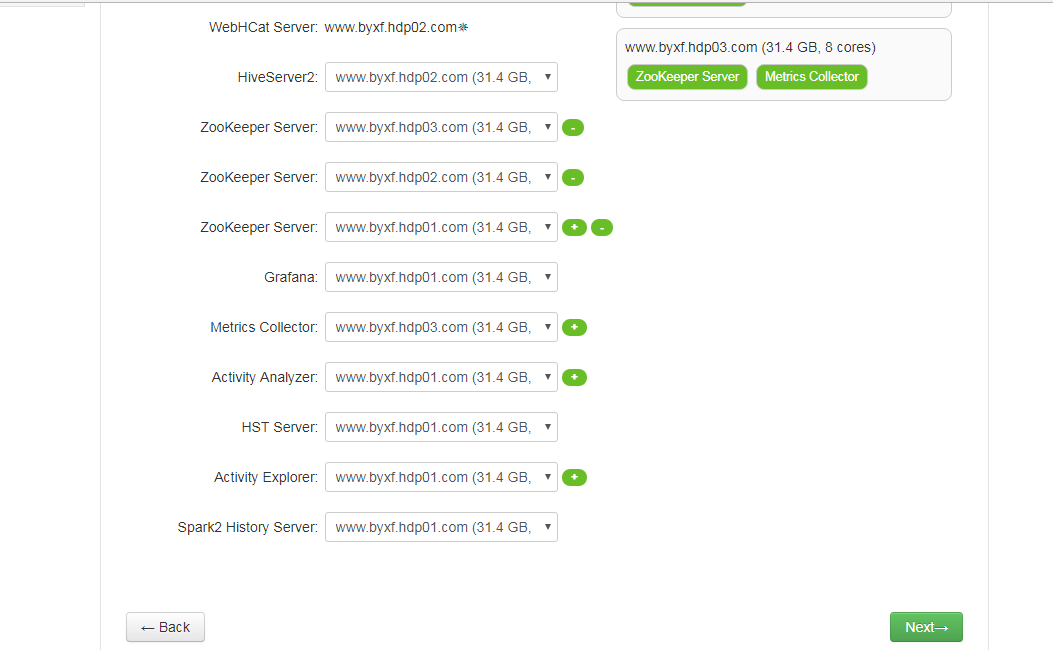


选择基础组件安装 HDFS YARN + MapReduce2 Hive ZooKeeper Spark2 点击下一步时，会提示安装一些东西，确认就可以，那是系统要求装的。

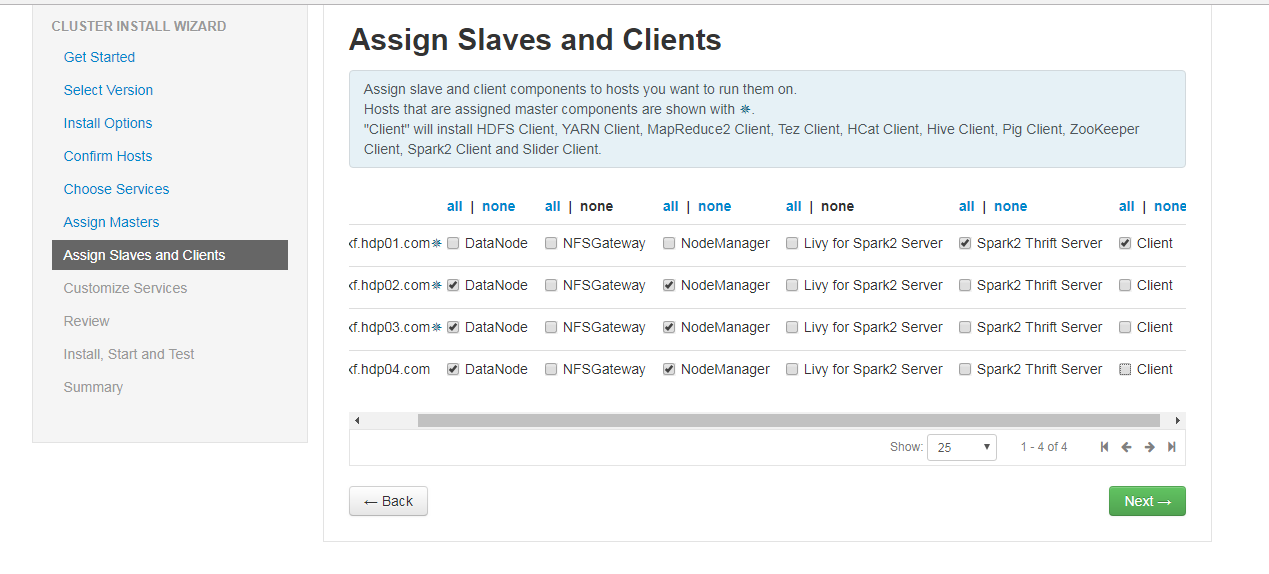


选择 节点安装的组件位置

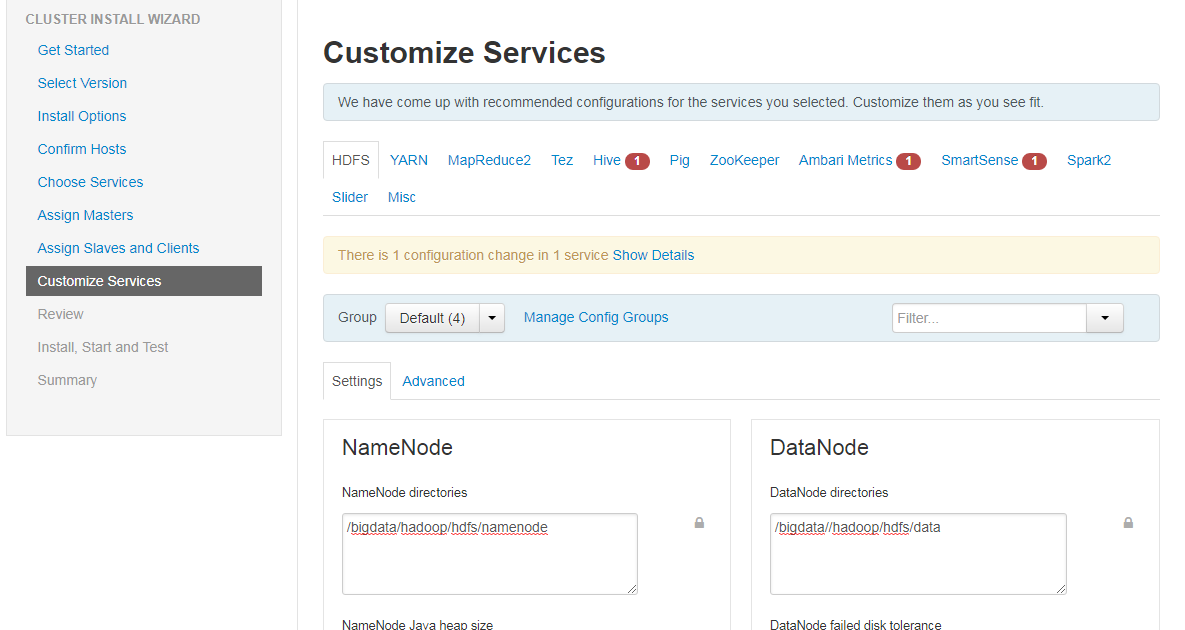




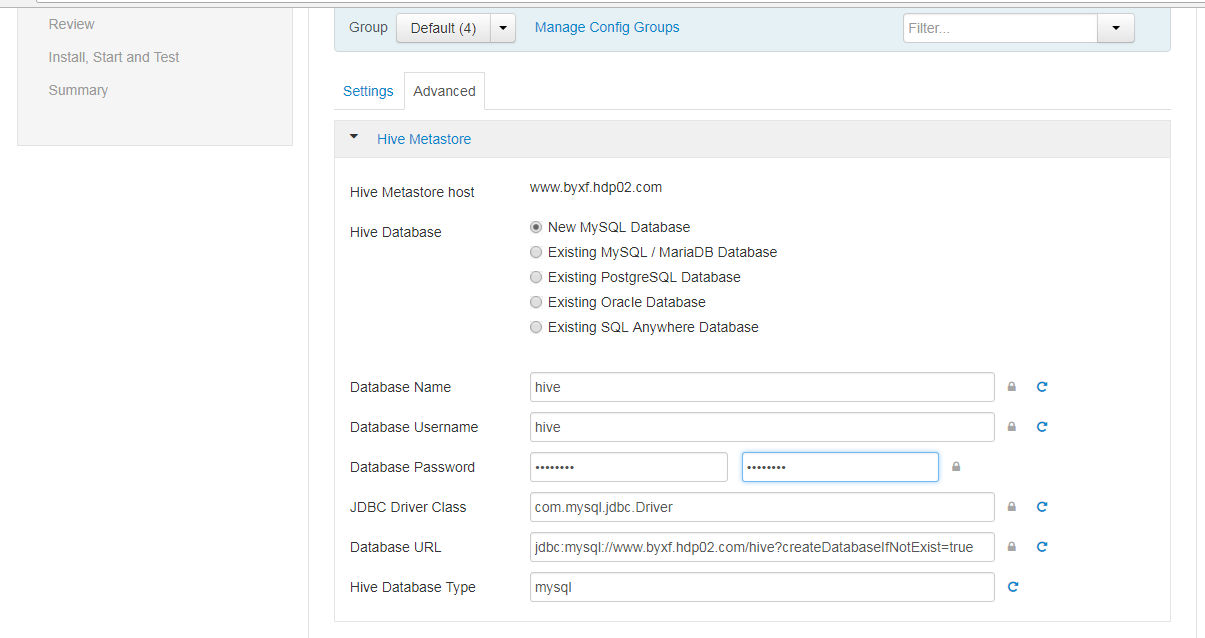
选择节点



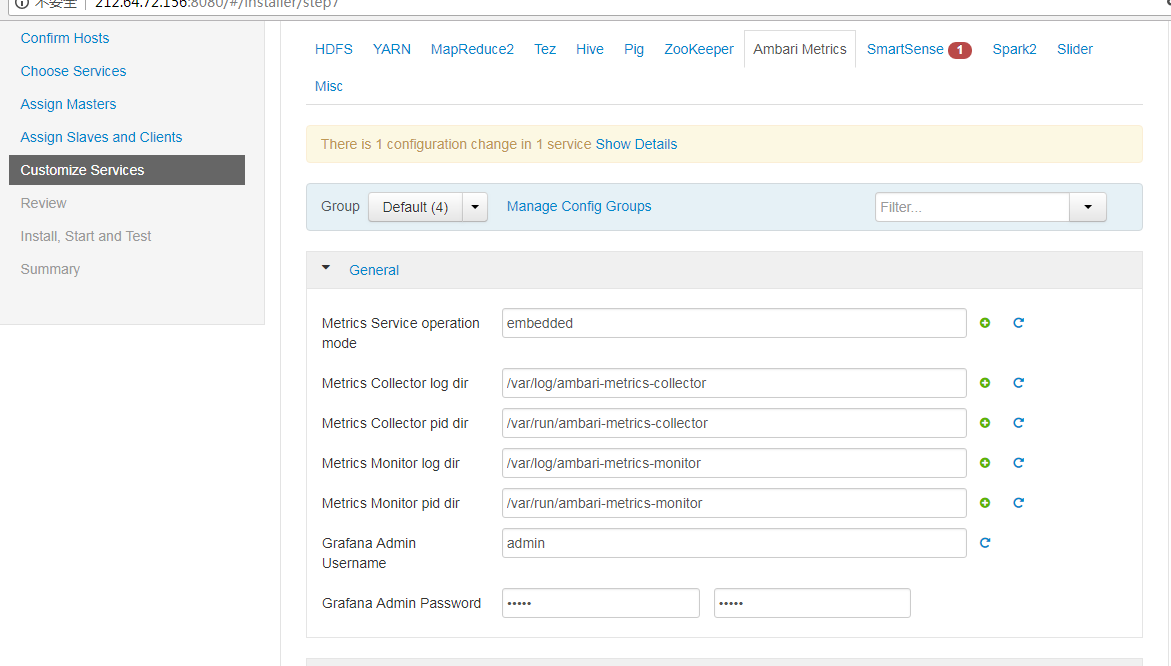
配置hdfs 文件目录 必须得在/目录下创建 如果没有可以创建软连接来实现



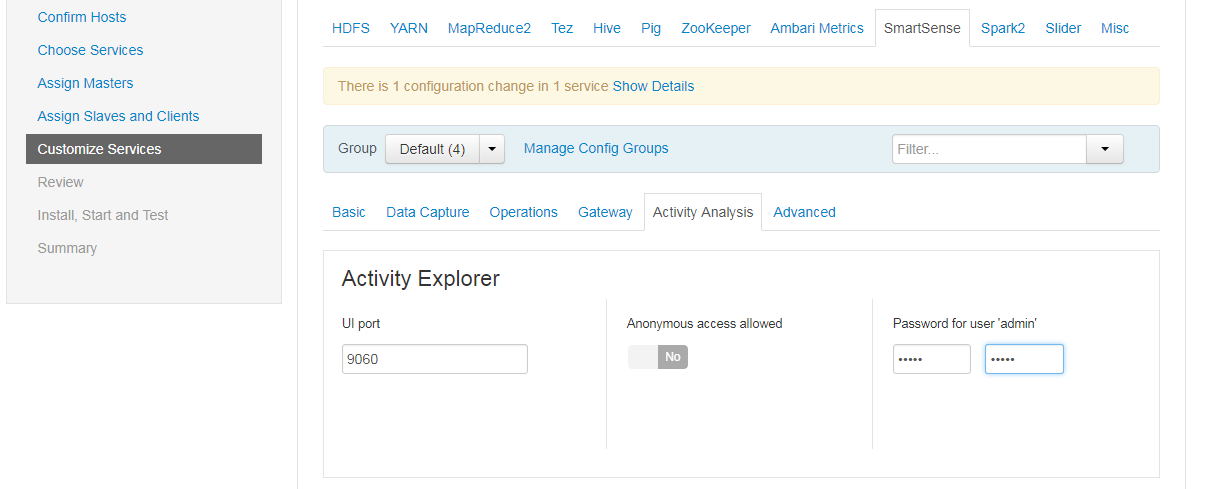
配置hive数据库用户名密码



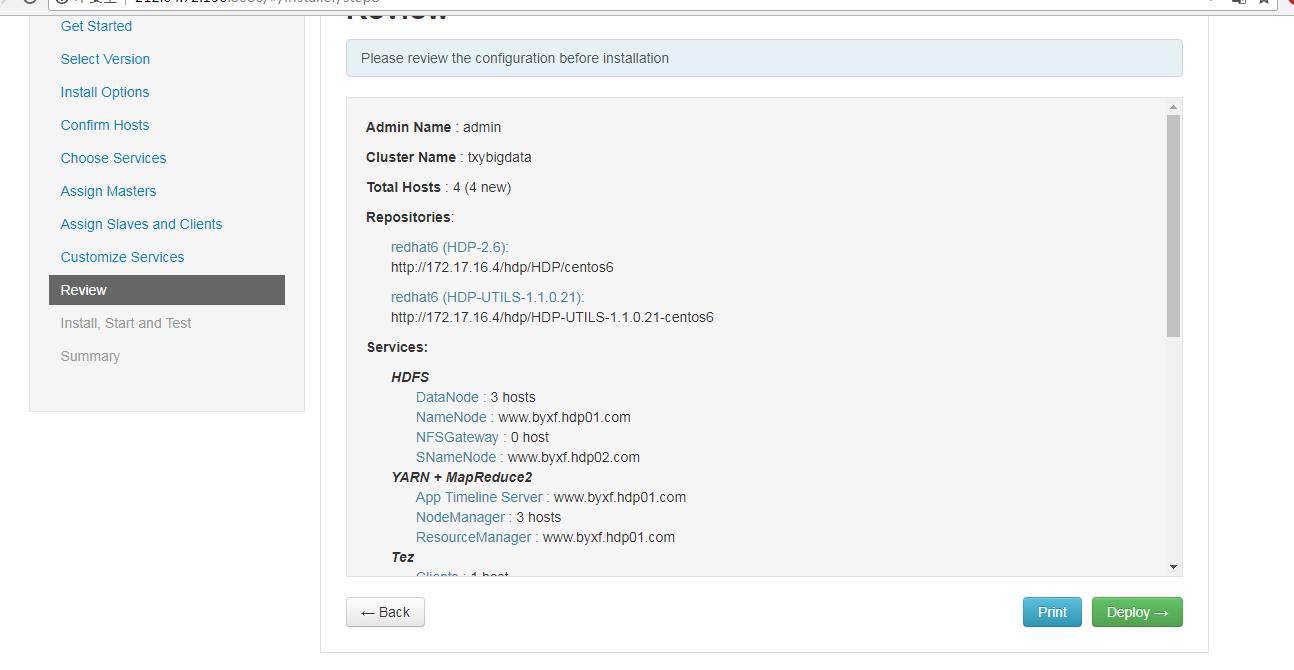
配置ambari metrics 密码



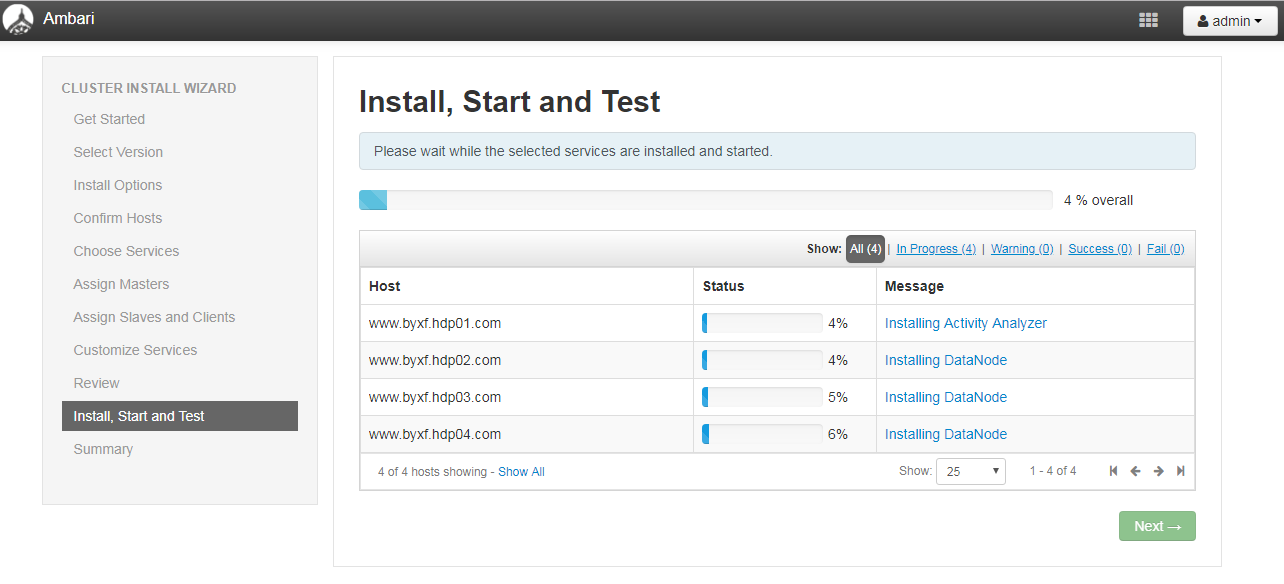
配置密码



配置的展示



安装中…….

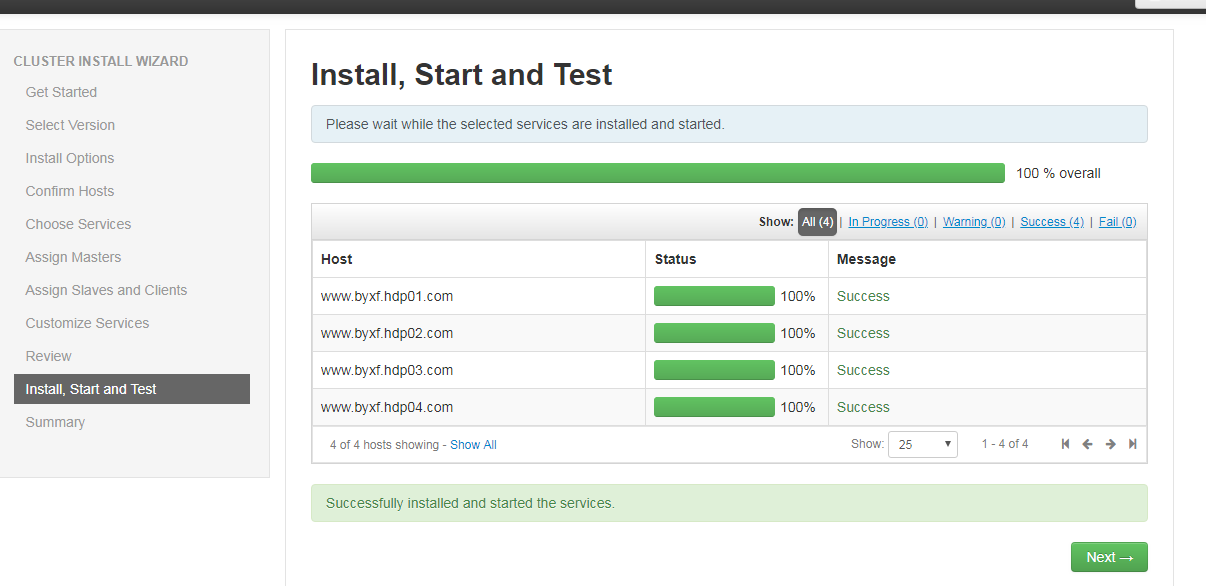


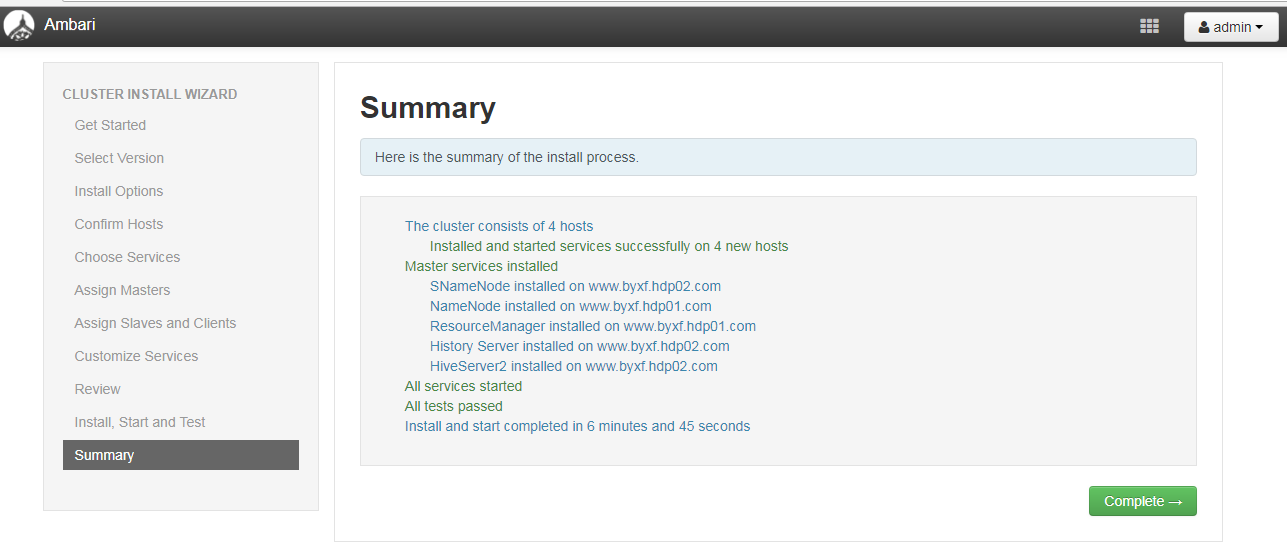
安装过程中[www.byxf.hdp02.com](http://www.byxf.hdp02.com) 出现两次报错：需要手动在服务器端执行

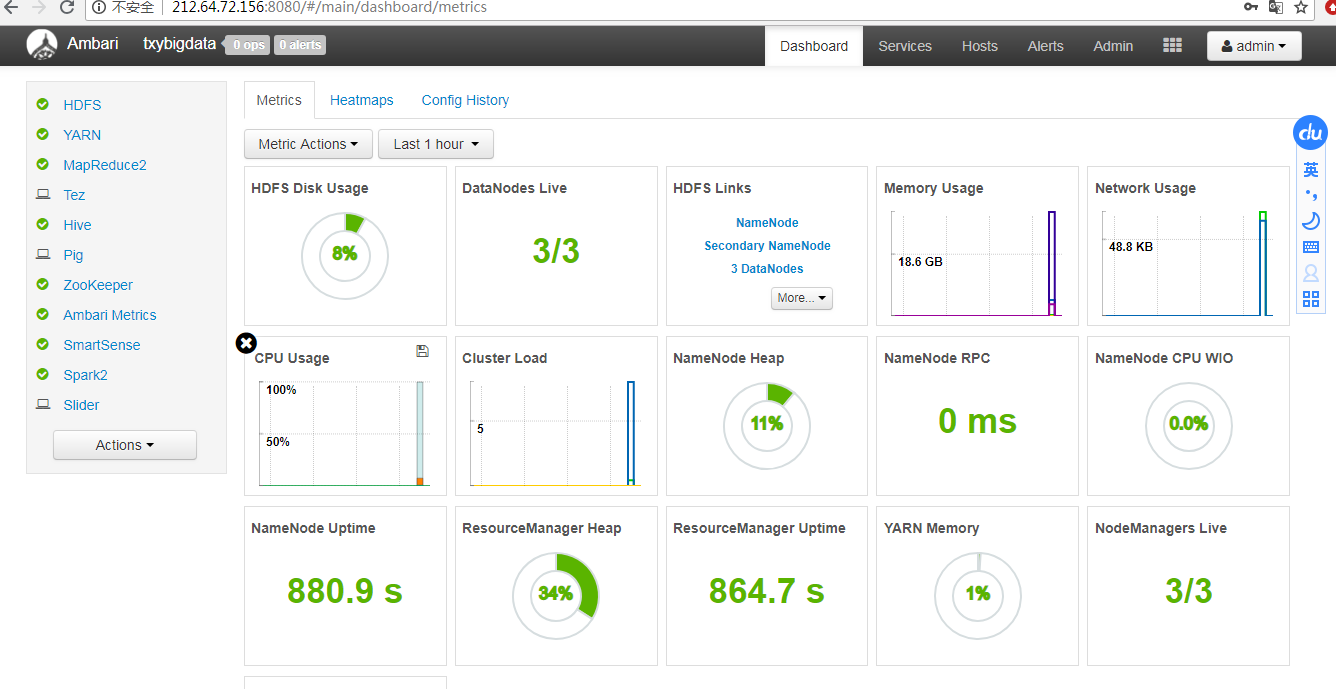
：yum install ambari-metrics-collector\*

yum -y install smartsense-hst

重试就可以了







至此hadoop集群就安装完成。