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BDF100 - Hortonworks Data Platform Administration - Mise en Place de l'Infrastructure

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BDF100 - Hortonworks Data Platform Administration - Mise en Place de l'Infrastructure

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Prérequis

Matériel

- Un poste (MacOS, Linux, Windows™ ou Solaris™),
- Clavier AZERTY FR ou QWERTY US,
- 4 Go de RAM minimum,
- Processeur 2 cœurs minimum,
- Un casque ou des écouteurs,
- Un micro (optionnel).

Logiciels

- Si Windows™ - Putty et WinSCP,
- Navigateur Web Chrome ou Firefox.

Internet

- Un accès à Internet **rapide** (4G minimum) **sans** passer par un proxy,
- Accès **débloqué** aux domaines suivants : https://my-short.link, https://itraining.center, https://ittraining.io, https://ittraining.institute, https://ittraining.support.

Mise en Place de l'Infrastructure

Connexion au Serveur Cloud

Pendant la durée de la formation, vous disposez d'un serveur dédié **XEON-SATA-2-64 Server - 8c/16t - Intel Xeon D-1540 - 64GB DDR4 ECC 2133MHz - 4x 2To HDD SATA Soft RAID**, pré-installé, pré-configuré et hébergé dans le cloud. Ce serveur est muni de VirtualBox.

Vous allez commencer par créer six machines virtuelles **CentOS 7** et les configurer selon le tableau ci-dessous :

Machine Virtuelle	Nom d'hôte	Interface 1	Interface 2
master1	master1.ittraining.loc	10.0.2.15	192.168.56.2
master2	master2.ittraining.loc	10.0.2.15	192.168.56.3
master3	master3.ittraining.loc	10.0.2.15	192.168.56.4
worker1	worker1.ittraining.loc	10.0.2.15	192.168.56.5
worker2	worker2.ittraining.loc	10.0.2.15	192.168.56.6
worker3	worker3.ittraining.loc	10.0.2.15	192.168.56.7

Les noms d'utilisateurs et les mots de passe seront :

Utilisateur	Mot de Passe
trainee	trainee
root	fenestros

Linux, MacOS et Windows 10 muni du client ssh

Ouvrez un terminal ou CMD et tapez la commande suivante :

```
$ ssh -l desktop serverXX.ittraining.network
```

```
> ssh -l desktop serverXX.ittraining.network
```

où **XX** représente le numéro de votre serveur dédié. Entrez ensuite le mot de passe qui vous a été fourni.

Windows 7 et Windows 10 sans client ssh

Ouvrez **putty** et utilisez les informations suivantes pour vous connecter à votre serveur dédié :

- Host Name –> serverXX.ittraining.network
- Port –> 22

Au prompt, connectez-vous en tant que **desktop** avec le mot de passe qui vous a été fourni.

Configuration de Votre Serveur

Téléchargement de la VM de base

Téléchargez la VM **CentOS_7_8.ova** :

```
desktop@serverXX:~$ cd Downloads
desktop@serverXX:~/Downloads$ scp desktop@server40.ittraining.network:/home/desktop/Downloads/CentOS_7_8.ova .
```

Le mot de passe est **Tk9ARhq48RQN**

Importer la VM CentOS_7_8.ova

```
desktop@serverXX:~/Downloads$ VBoxManage import CentOS_7_8.ova --vsys 0 --eula accept
desktop@serverXX:~/Downloads$ cd ~
```

Configurer le transfert de port pour la VM sur nic1

```
desktop@serverXX:~$ VBoxManage modifyvm "CentOS_7_8" --natpf1 "centos_7_8,tcp,,3022,,22"
```

Créer le Réseau Privé Hôte 192.168.56.0/24

Créez le Réseau Privé Hôte **192.168.56.0/24** qui permettra la communication entre les machines virtuelles :

```
desktop@serverXX:~$ VBoxManage hostonlyif create
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
Interface 'vboxnet0' was successfully created
```

Configurer nic2 en Réseau Privé Hôte

```
desktop@serverXX:~$ VBoxManage modifyvm CentOS_7_8 --nic2 hostonly --hostonlyadapter2 vboxnet0
```

Augmenter le nombre de vcpus sur la VM

```
desktop@serverXX:~$ VBoxManage modifyvm CentOS_7_8 --cpus 2
```

Augmenter la RAM de la VM

```
desktop@serverXX:~$ VBoxManage modifyvm CentOS_7_8 --memory 8192
```

Désactiver EHCI sur la VM

```
desktop@serverXX:~$ VBoxManage modifyvm CentOS_7_8 --usbehci off
```

Démarrer la VM

```
desktop@serverXX:~$ VBoxManage startvm CentOS_7_8 --type headless
```

Editer le fichier /etc/hosts

```
desktop@serverXX:~$ sudo su -
[sudo] password for desktop:
root@serverXX:~# vi /etc/hosts
root@serverXX:~# cat /etc/hosts
127.0.0.1   localhost
127.0.1.1   serverXX.ittraining.network    serverXX

# The following lines are desirable for IPv6 capable hosts
::1 localhost    ip6-localhost ip6-loopback
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
XXX.XXX.XXX.XXX serverXX.ittraining.network    serverXX
192.168.56.2   master1.ittraining.loc  master1
192.168.56.3   master2.ittraining.loc  master2
192.168.56.4   master3.ittraining.loc  master3
192.168.56.5   worker1.ittraining.loc  worker1
192.168.56.6   worker2.ittraining.loc  worker2
192.168.56.7   worker3.ittraining.loc  worker3
root@serverXX:~# exit
logout
```

Se connecter à la VM

```
desktop@serverXX:~$ ssh -l trainee localhost -p 3022
The authenticity of host '[localhost]:3022 ([127.0.0.1]:3022)' can't be established.
ECDSA key fingerprint is SHA256:p5z2DKHnUDZcE3RKKo5AbZiVHEe4MPj0qMRug9tAq7M.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '[localhost]:3022' (ECDSA) to the list of known hosts.
trainee@localhost's password: trainee
[trainee@centos7 ~]$
```

Devenir root

```
[trainee@centos7 ~]$ su -
Password: fenestros
Last login: Wed Sep  9 17:36:25 CEST 2020 on tty1
```

Editer le fichier /etc/hosts

```
[root@centos7 ~]# vi /etc/hosts
[root@centos7 ~]# cat /etc/hosts
127.0.0.1       localhost.localdomain localhost
::1     localhost6.localdomain6 localhost6
192.168.56.2   master1.ittraining.loc  master1
192.168.56.3   master2.ittraining.loc  master2
192.168.56.4   master3.ittraining.loc  master3
192.168.56.5   worker1.ittraining.loc  worker1
192.168.56.6   worker2.ittraining.loc  worker2
192.168.56.7   worker3.ittraining.loc  worker3
```

Augmenter le nombre de fichiers qui peuvent être ouverts en même temps

```
[root@centos7 ~]# ulimit -n 10000
```

Désactiver et arrêter le pare-feu

```
[root@centos7 ~]# systemctl disable firewalld
Removed symlink /etc/systemd/system/dbus-org.fedoraproject.FirewallD1.service.
Removed symlink /etc/systemd/system/basic.target.wants/firewalld.service.
[root@centos7 ~]# systemctl stop firewalld
```

Désactiver SELinux

```
[root@centos7 ~]# setenforce 0
[root@centos7 ~]# sed -i 's/SELINUX=enforcing/SELINUX=disabled/' /etc/selinux/config
```

Changer la valeur de VM Swappiness à 10

```
[root@centos7 ~]# echo "vm.swappiness = 10" >> /etc/sysctl.conf
```

Installer NTP puis Activer et démarrer le serveur NTP

```
[root@centos7 ~]# yum clean all
[root@centos7 ~]# yum makecache
[root@centos7 ~]# yum -y install ntp
[root@centos7 ~]# systemctl enable ntpd
Created symlink from /etc/systemd/system/multi-user.target.wants/ntpd.service to
/usr/lib/systemd/system/ntpd.service.
```

```
[root@centos7 ~]# systemctl start ntpd
```

Désactiver Transparent Huge Page

```
[root@centos7 ~]# echo "echo \"never\" >  /sys/kernel/mm/transparent_hugepage/enabled " >> /etc/rc.local
[root@centos7 ~]# echo "echo \"never\" > /sys/kernel/mm/transparent_hugepage/defrag" >>  /etc/rc.local
```

Configurer le réseau

Configurez **enp0s8** en IP fixe :

```
[root@centos7 ~]# nmcli connection add con-name ip_enp0s8 ifname enp0s8 type ethernet ip4 192.168.56.2/24 gw4
10.0.2.2
Connection 'ip_enp0s8' (0e8456ba-23c9-4fb4-a6fd-58d2f7af5048) successfully added.
[root@centos7 ~]# nmcli connection up ip_enp0s8
```

Fermez le terminal. Ouvrez un nouveau terminal et connectez-vous à votre serveur :

```
$ ssh desktop@serverXX.ittraining.network
desktop@serverX.ittraining.network's password:
```

Reconnectez-vous à la VM en utilisant l'adresse 192.168.56.2 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.2
The authenticity of host '192.168.56.2 (192.168.56.2)' can't be established.
ECDSA key fingerprint is SHA256:p5z2DKHnUDZcE3RKKo5AbZiVHEe4MPj0qMRug9tAq7M.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.56.2' (ECDSA) to the list of known hosts.
trainee@192.168.56.2's password: trainee
Last login: Tue Sep 15 06:49:40 2020 from gateway
[trainee@centos7 ~]$
```

Configurez **enp0s3** en IP fixe :

```
[trainee@centos7 ~]$ su -
Password: fenestros
Last login: Sat Sep 12 09:18:12 CEST 2020 on pts/0
[root@centos7 ~]# nmcli connection add con-name ip_enp0s3 ifname enp0s3 type ethernet ip4 10.0.2.15/24 gw4
10.0.2.2
Connection 'ip_enp0s3' (e709246c-417a-4be1-8194-64824d6e7d09) successfully added.
[root@centos7 ~]# nmcli connection mod ip_enp0s3 ipv4.dns 8.8.8.8
[root@centos7 ~]# nmcli connection up ip_enp0s3
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/4)
```

Arreter la VM

```
[root@centos7 ~]# exit
logout
[trainee@centos7 ~]$ exit
logout
Connection to localhost closed.
desktop@serverXX:~$ VBoxManage controlvm CentOS_7_8 poweroff
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
```

Supprimer la redirection de port de la VM

```
desktop@serverXX:~$ VBoxManage modifyvm CentOS_7_8 --natpf1 delete centos_7_8
```

Se placer dans le répertoire /home/desktop/VirtualBox\ VMs/

```
desktop@serverXX:~$ cd /home/desktop/VirtualBox\ VMs/
```

Cloner 6 fois la VM CentOS_7_8

```
desktop@serverXX:~/VirtualBox VMs$ VBoxManage export CentOS_7_8 --output master1.ova
desktop@serverXX:~/VirtualBox VMs$ VBoxManage export CentOS_7_8 --output master2.ova
desktop@serverXX:~/VirtualBox VMs$ VBoxManage export CentOS_7_8 --output master3.ova
desktop@serverXX:~/VirtualBox VMs$ VBoxManage export CentOS_7_8 --output worker1.ova
desktop@serverXX:~/VirtualBox VMs$ VBoxManage export CentOS_7_8 --output worker2.ova
desktop@serverXX:~/VirtualBox VMs$ VBoxManage export CentOS_7_8 --output worker3.ova
```

Déplacer les VMs dans /home/desktop/Downloads

```
desktop@serverXX:~/VirtualBox VMs$ mv *.ova ../Downloads/
desktop@serverXX:~/VirtualBox VMs$ cd ../Downloads
```

Importer les VMs

```
desktop@serverXX:~/Downloads$ VBoxManage import master1.ova --vsys 0 --eula accept
desktop@serverXX:~/Downloads$ VBoxManage import master2.ova --vsys 0 --eula accept
desktop@serverXX:~/Downloads$ VBoxManage import master3.ova --vsys 0 --eula accept
desktop@serverXX:~/Downloads$ VBoxManage import worker1.ova --vsys 0 --eula accept
desktop@serverXX:~/Downloads$ VBoxManage import worker2.ova --vsys 0 --eula accept
desktop@serverXX:~/Downloads$ VBoxManage import worker3.ova --vsys 0 --eula accept
```

Modifier les noms de clones

```
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "CentOS_7_8 1" --name master1
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "CentOS_7_8 2" --name master2
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "CentOS_7_8 3" --name master3
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "CentOS_7_8 4" --name worker1
```

```
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "CentOS_7_8 5" --name worker2
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "CentOS_7_8 6" --name worker3
```

Configurer la redirection de ports sur chaque VM

```
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "master1" --natpf1 "master1,tcp,,2222,,22"
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "master2" --natpf1 "master2,tcp,,2322,,22"
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "master3" --natpf1 "master3,tcp,,2422,,22"
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "worker1" --natpf1 "worker1,tcp,,2522,,22"
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "worker2" --natpf1 "worker2,tcp,,2622,,22"
desktop@serverXX:~/Downloads$ VBoxManage modifyvm "worker3" --natpf1 "worker3,tcp,,2722,,22"
```

Configurer la VM master1

Ouvrez un autre terminal et connectez-vous au serverXX.ittraining.network :

```
$ ssh desktop@serverXX.ittraining.network
desktop@serverXX.ittraining.network's password:
```

Démarrer la VM master1 :

```
desktop@serverXX:~$ VBoxManage startvm master1 --type headless
```

Connectez-vous à la VM master1 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.2
trainee@192.168.56.2's password:
Last login: Tue Sep 15 06:53:32 2020 from 192.168.56.1
```

Changer le hostname de la machine :

```
[root@centos7 ~]# su -
Password: fenestros
[root@centos7 ~]# nmcli general hostname master1.ittraining.loc
[root@centos7 ~]# exit
logout
[trainee@centos7 ~]$ exit
logout
Connection to localhost closed.
```

Connectez-vous à la VM master1 :

```
desktop@serverXX:~$ ssh -l trainee master1.ittraining.loc
The authenticity of host 'master1.ittraining.loc (192.168.56.2)' can't be established.
ECDSA key fingerprint is SHA256:p5z2DKHnUDZcE3RKKo5AbZiVHEe4MPj0qMRug9tAq7M.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'master1.ittraining.loc' (ECDSA) to the list of known hosts.
trainee@master1.ittraining.loc's password: trainee
Last login: Tue Sep 15 07:47:21 2020 from 192.168.56.1
[trainee@master1 ~]$
```

Devenez root :

```
[trainee@master1 ~]$ su -
Password: fenestros
Last login: Thu Sep 10 08:20:53 CEST 2020 on tty1
```

Editer /etc/sysconfig/network :

```
[root@master1 ~]# vi /etc/sysconfig/network
[root@master1 ~]# cat /etc/sysconfig/network
# Created by anaconda
NETWORKING=yes
HOSTNAME=master1.ittraining.loc
```

Installez, activez et démarrez le serveur Apache :

```
[root@master1 ~]# yum clean all
[root@master1 ~]# yum -y install httpd wget
[root@master1 ~]# systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to
/usr/lib/systemd/system/httpd.service.
[root@master1 ~]# systemctl start httpd
```

Téléchargez Ambari, HDP, HDP-UTILS et HDP-GPL :

```
[root@master1 ~]# wget https://www.dropbox.com/s/ze6iv91jnkti0o6/ambari-2.7.4.0-centos7.tar.gz
[root@master1 ~]# wget https://www.dropbox.com/s/a64kmict0ptmjd3/HDP-3.1.4.0-centos7-rpm.tar.gz
[root@master1 ~]# wget https://www.dropbox.com/s/v1c3mhigwalv54c/HDP-UTILS-1.1.0.22-centos7.tar.gz
[root@master1 ~]# wget https://www.dropbox.com/s/u5pisvh3va4l9ms/HDP-GPL-3.1.4.0-centos7-gpl.tar.gz
```

Installez les dépôts locaux des RPM :

```
[root@master1 ~]# tar zxvf ambari-2.7.4.0-centos7.tar.gz -C /var/www/html
[root@master1 ~]# tar zxvf HDP-3.1.4.0-centos7-rpm.tar.gz -C /var/www/html
[root@master1 ~]# tar zxvf HDP-UTILS-1.1.0.22-centos7.tar.gz -C /var/www/html
[root@master1 ~]# tar zxvf HDP-GPL-3.1.4.0-centos7-gpl.tar.gz -C /var/www/html
```

Créez le fichier **repositories** :

```
[root@master1 ~]# vi repositories
[root@master1 ~]# cat repositories
http://master1.ittraining.loc/HDP/centos7/3.1.4.0-315/
http://master1.ittraining.loc/HDP-GPL/centos7/3.1.4.0-315/
http://master1.ittraining.loc/HDP-UTILS/centos7/1.1.0.22/
http://master1.ittraining.loc/ambari/centos7/2.7.4.0-118  <--------------PAS de / à la fin
```

Créez le repository ambari dans yum :

```
[root@master1 ~]# vi /etc/yum.repos.d/ambari.repo
[root@master1 ~]# cat /etc/yum.repos.d/ambari.repo
[ambari]
name = Ambari Repo
baseurl = http://master1.ittraining.loc/ambari/centos7/2.7.4.0-118
gpgcheck = 0
```

Mettez à jour la base de données des dépôts dans yum :

```
[root@master1 ~]# yum clean all
Loaded plugins: fastestmirror
Cleaning repos: ambari base extras updates
Cleaning up list of fastest mirrors

[root@master1 ~]# yum makecache
Loaded plugins: fastestmirror
Determining fastest mirrors
 * base: mirrors.ircam.fr
 * extras: centos.mirrors.proxad.net
 * updates: mirrors.ircam.fr
ambari
| 2.9 kB  00:00:00
base
| 3.6 kB  00:00:00
extras
| 2.9 kB  00:00:00
updates
| 2.9 kB  00:00:00
(1/13): ambari/filelists_db
| 104 kB  00:00:00
(2/13): ambari/other_db
| 1.4 kB  00:00:00
(3/13): ambari/primary_db
|  25 kB  00:00:00
```

```
(4/13): base/7/x86_64/group_gz
| 153 kB  00:00:00
(5/13): base/7/x86_64/filelists_db
| 7.1 MB  00:00:00
(6/13): base/7/x86_64/other_db
| 2.6 MB  00:00:00
(7/13): extras/7/x86_64/filelists_db
| 217 kB  00:00:00
(8/13): extras/7/x86_64/other_db
| 124 kB  00:00:00
(9/13): updates/7/x86_64/filelists_db
| 2.4 MB  00:00:00
(10/13): updates/7/x86_64/primary_db
| 4.5 MB  00:00:00
(11/13): base/7/x86_64/primary_db
| 6.1 MB  00:00:02
(12/13): updates/7/x86_64/other_db
| 316 kB  00:00:01
(13/13): extras/7/x86_64/primary_db
| 206 kB  00:00:03
Metadata Cache Created
```

Installez ambari server et agent :

```
[root@master1 ~]# yum -y install ambari-server ambari-agent
```

Configurez le serveur ambari :

```
[root@master1 ~]# ambari-server setup
Using python  /usr/bin/python
Setup ambari-server
Checking SELinux...
SELinux status is 'disabled'
Customize user account for ambari-server daemon [y/n] (n)?
```

```
Adjusting ambari-server permissions and ownership...
Checking firewall status...
Checking JDK...
[1] Oracle JDK 1.8 + Java Cryptography Extension (JCE) Policy Files 8
[2] Custom JDK
================================================================================
Enter choice (1):
To download the Oracle JDK and the Java Cryptography Extension (JCE) Policy Files you must accept the license
terms found at http://www.oracle.com/technetwork/java/javase/terms/license/index.html and not accepting will
cancel the Ambari Server setup and you must install the JDK and JCE files manually.
Do you accept the Oracle Binary Code License Agreement [y/n] (y)? y
Downloading JDK from http://public-repo-1.hortonworks.com/ARTIFACTS/jdk-8u112-linux-x64.tar.gz to
/var/lib/ambari-server/resources/jdk-8u112-linux-x64.tar.gz
jdk-8u112-linux-x64.tar.gz... 100% (174.7 MB of 174.7 MB)
Successfully downloaded JDK distribution to /var/lib/ambari-server/resources/jdk-8u112-linux-x64.tar.gz
Installing JDK to /usr/jdk64/
Successfully installed JDK to /usr/jdk64/
Downloading JCE Policy archive from http://public-repo-1.hortonworks.com/ARTIFACTS/jce_policy-8.zip to
/var/lib/ambari-server/resources/jce_policy-8.zip

Successfully downloaded JCE Policy archive to /var/lib/ambari-server/resources/jce_policy-8.zip
Installing JCE policy...
Check JDK version for Ambari Server...
JDK version found: 8
Minimum JDK version is 8 for Ambari. Skipping to setup different JDK for Ambari Server.
Checking GPL software agreement...
GPL License for LZO: https://www.gnu.org/licenses/old-licenses/gpl-2.0.en.html
Enable Ambari Server to download and install GPL Licensed LZO packages [y/n] (n)? y
Completing setup...
Configuring database...
Enter advanced database configuration [y/n] (n)? n
Configuring database...
Default properties detected. Using built-in database.
Configuring ambari database...
```

```
Checking PostgreSQL...
Running initdb: This may take up to a minute.
Initializing database ... OK


About to start PostgreSQL
Configuring local database...
Configuring PostgreSQL...
Restarting PostgreSQL
Creating schema and user...
done.
Creating tables...
done.
Extracting system views...
ambari-admin-2.7.4.0.118.jar
....
Ambari repo file doesn't contain latest json url, skipping repoinfos modification
Adjusting ambari-server permissions and ownership...
Ambari Server 'setup' completed successfully.
```

Démarrez le serveur ambari :

```
[root@master1 ~]# ambari-server start
...
[root@master1 ~]# ambari-server status
Using python  /usr/bin/python
Ambari-server status
Ambari Server running
Found Ambari Server PID: 1494 at: /var/run/ambari-server/ambari-server.pid
```

Modifiez le fichier /etc/ambari-agent/conf/ambari-agent.ini :

```
[root@master1 ~]# vi /etc/ambari-agent/conf/ambari-agent.ini
[root@master1 ~]# cat /etc/ambari-agent/conf/ambari-agent.ini
```

```
# Licensed to the Apache Software Foundation (ASF) under one or more
# contributor license agreements.  See the NOTICE file distributed with
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[server]
hostname=master1.ittraining.loc  <-----------------------modifier de localhost à master1.ittraining.loc
url_port=8440
secured_url_port=8441
connect_retry_delay=10
max_reconnect_retry_delay=30
```

Démarrez le service ambari-agent :

```
[root@master1 ~]# 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
Agent PID at: /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
```

Arrêtez la VM master1 :

```
[root@master1 ~]# shutdown -h now
Connection to 192.168.56.2 closed by remote host.
Connection to 192.168.56.2 closed.
```

Configurer la VM master2

Démarrer la VM master2 :

```
desktop@serverXX:~$ VBoxManage startvm master2 --type headless
```

Connectez-vous à la VM master2 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.2
trainee@192.168.56.2's password: trainee
Last login: Sat Sep 12 09:36:26 2020 from 192.168.56.1
```

Changer le hostname de la machine et modifiez l'adresse IP fixe de l'interface enp0s8 :

```
[trainee@centos7 ~]$ su -
Password: fenestros
Last login: Thu Sep 10 16:53:17 CEST 2020 on pts/0
[root@centos7 ~]# nmcli general hostname master2.ittraining.loc
[root@centos7 ~]# nmcli con mod ip_enp0s8 ipv4.addresses 192.168.56.3/24
```

Editer /etc/sysconfig/network :

```
[root@centos7 ~]# vi /etc/sysconfig/network
[root@centos7 ~]# cat /etc/sysconfig/network
```

```
# Created by anaconda
NETWORKING=yes
HOSTNAME=master2.ittraining.loc
```

Activez l'adresse IP 192.168.56.3 :

```
[root@centos7 ~]# nmcli connection up ip_enp0s8
```

Fermez le terminal courant et ouvrez un autre terminal. Connectez-vous au serverXX :

```
$ ssh desktop@serverXX.ittraining.network
desktop@serverXX.ittraining.network's password:
```

Démarrez la VM master1 :

```
desktop@serverXX:~$ VBoxManage startvm master1 --type headless
```

Connectez-vous à la VM master2 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.3
The authenticity of host '192.168.56.3 (192.168.56.3)' can't be established.
ECDSA key fingerprint is SHA256:p5z2DKHnUDZcE3RKKo5AbZiVHEe4MPj0qMRug9tAq7M.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.56.3' (ECDSA) to the list of known hosts.
trainee@192.168.56.3's password:
Last login: Tue Sep 15 08:35:43 2020 from 192.168.56.1
[trainee@master2 ~]$
```

Créez le repository ambari dans yum :

```
[trainee@master2 ~]$ su -
Password: fenestros
```

```
Last login: Tue Sep 15 08:36:04 CEST 2020 on pts/0
[root@master2 ~]# vi /etc/yum.repos.d/ambari.repo
[root@master2 ~]# cat /etc/yum.repos.d/ambari.repo
[ambari]
name = Ambari Repo
baseurl = http://master1.ittraining.loc/ambari/centos7/2.7.4.0-118
gpgcheck = 0
```

Mettez à jour la base de données des dépôts dans yum :

```
[root@master2 ~]# yum clean all
Loaded plugins: fastestmirror
Cleaning repos: ambari base extras updates
Cleaning up list of fastest mirrors

[root@master2 ~]# yum makecache
Loaded plugins: fastestmirror
Determining fastest mirrors
 * base: mirroir.wptheme.fr
 * extras: ftp.rezopole.net
 * updates: mirroir.wptheme.fr
ambari
| 2.9 kB  00:00:00
base
| 3.6 kB  00:00:00
extras
| 2.9 kB  00:00:00
updates
| 2.9 kB  00:00:00
(1/13): ambari/filelists_db
| 104 kB  00:00:00
(2/13): ambari/primary_db
|  25 kB  00:00:00
(3/13): ambari/other_db
```

```
| 1.4 kB  00:00:00
(4/13): base/7/x86_64/group_gz
| 153 kB  00:00:00
(5/13): base/7/x86_64/filelists_db
| 7.1 MB  00:00:01
(6/13): extras/7/x86_64/filelists_db
| 217 kB  00:00:00
(7/13): extras/7/x86_64/primary_db
| 206 kB  00:00:00
(8/13): extras/7/x86_64/other_db
| 124 kB  00:00:00
(9/13): updates/7/x86_64/other_db
| 316 kB  00:00:00
(10/13): base/7/x86_64/other_db
| 2.6 MB  00:00:01
(11/13): updates/7/x86_64/filelists_db
| 2.4 MB  00:00:01
(12/13): base/7/x86_64/primary_db
| 6.1 MB  00:00:03
(13/13): updates/7/x86_64/primary_db
| 4.5 MB  00:00:07
Metadata Cache Created
```

Installez ambari agent :

```
[root@master2 ~]# yum -y install ambari-agent
```

Modifiez le fichier /etc/ambari-agent/conf/ambari-agent.ini :

```
[root@master2 ~]# vi /etc/ambari-agent/conf/ambari-agent.ini
...
[server]
hostname=master1.ittraining.loc  <----------------------modifier de localhost à master1.ittraining.loc
```

```
...
```

Démarrez le service ambari-agent :

```
[root@master2 ~]# 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
Agent PID at: /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
```

Arrêtez la VM master2 :

```
[root@master2 ~]# shutdown -h now
Connection to 192.168.56.3 closed by remote host.
Connection to 192.168.56.3 closed.
```

Arrêtez la VM master1 :

```
desktop@serverXX:~$ VBoxManage controlvm master1 poweroff
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
```

Configurer la VM master3

Démarrer la VM master3 :

```
desktop@serverXX:~$ VBoxManage startvm master3 --type headless
```

Connectez-vous à la VM master3 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.2
trainee@192.168.56.2's password: fenestros
Last login: Tue Sep 15 06:53:32 2020 from 192.168.56.1
```

Changer le hostname de la machine et modifiez l'adresse IP fixe de l'interface enp0s8 :

```
[trainee@centos7 ~]$ su -
Password: fenestros
Last login: Thu Sep 10 16:53:17 CEST 2020 on pts/0
[root@centos7 ~]# nmcli general hostname master3.ittraining.loc
[root@centos7 ~]# nmcli con mod ip_enp0s8 ipv4.addresses 192.168.56.4/24
```

Editer /etc/sysconfig/network :

```
[root@centos7 ~]# vi /etc/sysconfig/network
[root@centos7 ~]# cat /etc/sysconfig/network
# Created by anaconda
NETWORKING=yes
HOSTNAME=master3.ittraining.loc
```

Activez l'adresse IP 192.168.56.4 :

```
[root@centos7 ~]# nmcli connection up ip_enp0s8

```

Fermez le terminal courant et ouvrez un autre terminal. Connectez-vous au serverXX :

```
$ ssh desktop@serverXX.ittraining.network
desktop@serverXX.ittraining.network's password:
```

Démarrez la VM master1 :

```
desktop@serverXX:~$ VBoxManage startvm master1 --type headless
```

Connectez-vous à la VM master3 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.4
The authenticity of host '192.168.56.4 (192.168.56.4)' can't be established.
ECDSA key fingerprint is SHA256:p5z2DKHnUDZcE3RKKo5AbZiVHEe4MPj0qMRug9tAq7M.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.56.4' (ECDSA) to the list of known hosts.
trainee@192.168.56.4's password: trainee
Last login: Tue Sep 15 09:20:09 2020 from 192.168.56.1
[trainee@master3 ~]$
```

Créez le repository ambari dans yum :

```
[trainee@master3 ~]$ su -
Password: fenestros
Last login: Tue Sep 15 09:20:43 CEST 2020 on pts/0
[root@master3 ~]# vi /etc/yum.repos.d/ambari.repo
[root@master3 ~]# cat /etc/yum.repos.d/ambari.repo
[ambari]
name = Ambari Repo
baseurl = http://master1.ittraining.loc/ambari/centos7/2.7.4.0-118
gpgcheck = 0
```

Mettez à jour la base de données des dépôts dans yum :

```
[root@master3 ~]# yum clean all
Loaded plugins: fastestmirror
Cleaning repos: ambari base extras updates
Cleaning up list of fastest mirrors
```

```
[root@master3 ~]# yum makecache
Loaded plugins: fastestmirror
Determining fastest mirrors
 * base: mirroir.wptheme.fr
 * extras: ftp.rezopole.net
 * updates: mirroir.wptheme.fr
ambari
| 2.9 kB  00:00:00
base
| 3.6 kB  00:00:00
extras
| 2.9 kB  00:00:00
updates
| 2.9 kB  00:00:00
(1/13): ambari/filelists_db
| 104 kB  00:00:00
(2/13): ambari/primary_db
|  25 kB  00:00:00
(3/13): ambari/other_db
| 1.4 kB  00:00:00
(4/13): base/7/x86_64/group_gz
| 153 kB  00:00:00
(5/13): base/7/x86_64/filelists_db
| 7.1 MB  00:00:01
(6/13): extras/7/x86_64/filelists_db
| 217 kB  00:00:00
(7/13): extras/7/x86_64/primary_db
| 206 kB  00:00:00
(8/13): extras/7/x86_64/other_db
| 124 kB  00:00:00
(9/13): updates/7/x86_64/other_db
| 316 kB  00:00:00
(10/13): base/7/x86_64/other_db
| 2.6 MB  00:00:01
```

```
(11/13): updates/7/x86_64/filelists_db
| 2.4 MB  00:00:01
(12/13): base/7/x86_64/primary_db
| 6.1 MB  00:00:03
(13/13): updates/7/x86_64/primary_db
| 4.5 MB  00:00:07
Metadata Cache Created
```

Installez ambari agent :

```
[root@master3 ~]# yum -y install ambari-agent
```

Modifiez le fichier /etc/ambari-agent/conf/ambari-agent.ini :

```
[root@master3 ~]# vi /etc/ambari-agent/conf/ambari-agent.ini
...
[server]
hostname=master1.ittraining.loc  <----------------------modifier de localhost à master1.ittraining.loc
...
```

Démarrez le service ambari-agent :

```
[root@master3 ~]# 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
Agent PID at: /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
```

Arrêtez la VM master3 :

```
[root@master3 ~]# shutdown -h now
Connection to 192.168.56.4 closed by remote host.
Connection to 192.168.56.4 closed.
```

Arrêtez la VM master1 :

```
desktop@serverXX:~$ VBoxManage controlvm master1 poweroff
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
```

Configurer la VM worker1

Démarrer la VM worker1 :

```
desktop@serverXX:~$ VBoxManage startvm worker1 --type headless
```

Connectez-vous à la VM worker1 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.2
trainee@192.168.56.2's password: trainee
Last login: Tue Sep 15 06:53:32 2020 from 192.168.56.1
```

Changer le hostname de la machine et modifiez l'adresse IP fixe de l'interface enp0s8 :

```
[trainee@centos7 ~]$ su -
Password: fenestros
Last login: Thu Sep 10 16:53:17 CEST 2020 on pts/0
[root@centos7 ~]# nmcli general hostname worker1.ittraining.loc
[root@centos7 ~]# nmcli con mod ip_enp0s8 ipv4.addresses 192.168.56.5/24
```

Editer /etc/sysconfig/network :

```
[root@centos7 ~]# vi /etc/sysconfig/network
[root@centos7 ~]# cat /etc/sysconfig/network
# Created by anaconda
NETWORKING=yes
HOSTNAME=worker1.ittraining.loc
```

Activez l'adresse IP 192.168.56.5 :

```
[root@centos7 ~]# nmcli connection up ip_enp0s8
```

Fermez le terminal courant et ouvrez un autre terminal. Connectez-vous au serverXX :

```
$ ssh desktop@serverXX.ittraining.network
desktop@serverXX.ittraining.network's password:
```

Démarrez la VM master1 :

```
desktop@serverXX:~$ VBoxManage startvm master1 --type headless
```

Connectez-vous à la VM worker1 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.5
The authenticity of host '192.168.56.5 (192.168.56.5)' can't be established.
ECDSA key fingerprint is SHA256:p5z2DKHnUDZcE3RKKo5AbZiVHEe4MPj0qMRug9tAq7M.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.56.5' (ECDSA) to the list of known hosts.
trainee@192.168.56.5's password: trainee
Last login: Tue Sep 15 09:32:41 2020 from 192.168.56.1
[trainee@worker1 ~]$
```

Créez le repository ambari dans yum :

```
[trainee@worker1 ~]$ su -
Password: fenestros
[root@worker1 ~]# vi /etc/yum.repos.d/ambari.repo
[root@worker1 ~]# cat /etc/yum.repos.d/ambari.repo
[ambari]
name = Ambari Repo
baseurl = http://master1.ittraining.loc/ambari/centos7/2.7.4.0-118
gpgcheck = 0
```

Mettez à jour la base de données des dépôts dans yum :

```
[root@worker1 ~]# yum clean all
Loaded plugins: fastestmirror
Cleaning repos: ambari base extras updates
Cleaning up list of fastest mirrors

[root@worker1 ~]# yum makecache
Loaded plugins: fastestmirror
Determining fastest mirrors
 * base: mirroir.wptheme.fr
 * extras: ftp.rezopole.net
 * updates: mirroir.wptheme.fr
ambari
| 2.9 kB  00:00:00
base
| 3.6 kB  00:00:00
extras
| 2.9 kB  00:00:00
updates
| 2.9 kB  00:00:00
(1/13): ambari/filelists_db
| 104 kB  00:00:00
(2/13): ambari/primary_db
|  25 kB  00:00:00
```

```
(3/13): ambari/other_db
| 1.4 kB  00:00:00
(4/13): base/7/x86_64/group_gz
| 153 kB  00:00:00
(5/13): base/7/x86_64/filelists_db
| 7.1 MB  00:00:01
(6/13): extras/7/x86_64/filelists_db
| 217 kB  00:00:00
(7/13): extras/7/x86_64/primary_db
| 206 kB  00:00:00
(8/13): extras/7/x86_64/other_db
| 124 kB  00:00:00
(9/13): updates/7/x86_64/other_db
| 316 kB  00:00:00
(10/13): base/7/x86_64/other_db
| 2.6 MB  00:00:01
(11/13): updates/7/x86_64/filelists_db
| 2.4 MB  00:00:01
(12/13): base/7/x86_64/primary_db
| 6.1 MB  00:00:03
(13/13): updates/7/x86_64/primary_db
| 4.5 MB  00:00:07
Metadata Cache Created
```

Installez ambari agent :

```
[root@worker1 ~]# yum -y install ambari-agent
```

Modifiez le fichier /etc/ambari-agent/conf/ambari-agent.ini :

```
[root@worker1 ~]# vi /etc/ambari-agent/conf/ambari-agent.ini
...
[server]
hostname=master1.ittraining.loc  <----------------------modifier de localhost à master1.ittraining.loc
```

```
...
```

Démarrez le service ambari-agent :

```
[root@worker1 ~]# 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
Agent PID at: /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
```

Arrêtez la VM worker1 :

```
[root@worker1 ~]# shutdown -h now
Connection to 192.168.56.5 closed by remote host.
Connection to 192.168.56.5 closed.
```

Arrêtez la VM master1 :

```
desktop@serverXX:~$ VBoxManage controlvm master1 poweroff
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
```

Configurer la VM worker2

Démarrer la VM worker2 :

```
desktop@serverXX:~$ VBoxManage startvm worker2 --type headless
```

Connectez-vous à la VM worker2 :

```
desktop@server40:~$ ssh -l trainee 192.168.56.2
trainee@192.168.56.2's password: trainee
Last login: Tue Sep 15 06:53:32 2020 from 192.168.56.1
```

Changer le hostname de la machine et modifiez l'adresse IP fixe de l'interface enp0s8 :

```
[trainee@centos7 ~]$ su -
Password: fenestros
Last login: Thu Sep 10 16:53:17 CEST 2020 on pts/0
[root@centos7 ~]# nmcli general hostname worker2.ittraining.loc
[root@centos7 ~]# nmcli con mod ip_enp0s8 ipv4.addresses 192.168.56.6/24
```

Editer /etc/sysconfig/network :

```
[root@centos7 ~]# vi /etc/sysconfig/network
[root@centos7 ~]# cat /etc/sysconfig/network
# Created by anaconda
NETWORKING=yes
HOSTNAME=worker2.ittraining.loc
```

Activez l'adresse IP 192.168.56.6 :

```
[root@centos7 ~]# nmcli connection up ip_enp0s8

```

Fermez le terminal courant et ouvrez un autre terminal. Connectez-vous au serverXX :

```
$ ssh desktop@serverXX.ittraining.network
desktop@serverXX.ittraining.network's password:
```

Démarrez la VM master1 :

```
desktop@serverXX:~$ VBoxManage startvm master1 --type headless
```

Connectez-vous à la VM worker2 :

```
desktop@server40:~$ ssh -l trainee 192.168.56.6
The authenticity of host '192.168.56.6 (192.168.56.6)' can't be established.
ECDSA key fingerprint is SHA256:p5z2DKHnUDZcE3RKKo5AbZiVHEe4MPj0qMRug9tAq7M.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.56.6' (ECDSA) to the list of known hosts.
trainee@192.168.56.6's password: trainee
Last login: Tue Sep 15 09:44:25 2020 from 192.168.56.1
```

Créez le repository ambari dans yum :

```
[trainee@worker2 ~]$ su -
Password: fenestros
[root@worker2 ~]# vi /etc/yum.repos.d/ambari.repo
[root@worker2 ~]# cat /etc/yum.repos.d/ambari.repo
[ambari]
name = Ambari Repo
baseurl = http://master1.ittraining.loc/ambari/centos7/2.7.4.0-118
gpgcheck = 0
```

Mettez à jour la base de données des dépôts dans yum :

```
[root@worker2 ~]# yum clean all
Loaded plugins: fastestmirror
Cleaning repos: ambari base extras updates
Cleaning up list of fastest mirrors

[root@worker2 ~]# yum makecache
Loaded plugins: fastestmirror
```

```
Determining fastest mirrors
 * base: mirroir.wptheme.fr
 * extras: ftp.rezopole.net
 * updates: mirroir.wptheme.fr
ambari
| 2.9 kB  00:00:00
base
| 3.6 kB  00:00:00
extras
| 2.9 kB  00:00:00
updates
| 2.9 kB  00:00:00
(1/13): ambari/filelists_db
| 104 kB  00:00:00
(2/13): ambari/primary_db
|  25 kB  00:00:00
(3/13): ambari/other_db
| 1.4 kB  00:00:00
(4/13): base/7/x86_64/group_gz
| 153 kB  00:00:00
(5/13): base/7/x86_64/filelists_db
| 7.1 MB  00:00:01
(6/13): extras/7/x86_64/filelists_db
| 217 kB  00:00:00
(7/13): extras/7/x86_64/primary_db
| 206 kB  00:00:00
(8/13): extras/7/x86_64/other_db
| 124 kB  00:00:00
(9/13): updates/7/x86_64/other_db
| 316 kB  00:00:00
(10/13): base/7/x86_64/other_db
| 2.6 MB  00:00:01
(11/13): updates/7/x86_64/filelists_db
| 2.4 MB  00:00:01
```

```
(12/13): base/7/x86_64/primary_db
| 6.1 MB  00:00:03
(13/13): updates/7/x86_64/primary_db
| 4.5 MB  00:00:07
Metadata Cache Created
```

Installez ambari agent :

```
[root@worker2 ~]# yum -y install ambari-agent
```

Modifiez le fichier /etc/ambari-agent/conf/ambari-agent.ini :

```
[root@worker2 ~]# vi /etc/ambari-agent/conf/ambari-agent.ini
...
[server]
hostname=master1.ittraining.loc  <----------------------modifier de localhost à master1.ittraining.loc
...
```

Démarrez le service ambari-agent :

```
[root@worker2 ~]# 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
Agent PID at: /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
```

Arrêtez la VM worker2 :

```
[root@worker2 ~]# shutdown -h now
Connection to 192.168.56.6 closed by remote host.
Connection to 192.168.56.6 closed.
```

Arrêtez la VM master1 :

```
desktop@serverXX:~$ VBoxManage controlvm master1 poweroff
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
```

Configurer la VM worker3

Démarrer la VM worker3 :

```
desktop@serverXX:~$ VBoxManage startvm worker3 --type headless
```

Connectez-vous à la VM worker3 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.2
trainee@192.168.56.2's password: trainee
Last login: Tue Sep 15 06:53:32 2020 from 192.168.56.1
```

Changer le hostname de la machine et modifiez l'adresse IP fixe de l'interface enp0s8 :

```
[trainee@centos7 ~]$ su -
Password: fenestros
Last login: Thu Sep 10 16:53:17 CEST 2020 on pts/0
[root@centos7 ~]# nmcli general hostname worker3.ittraining.loc
[root@centos7 ~]# nmcli con mod ip_enp0s8 ipv4.addresses 192.168.56.7/24
```

Editer /etc/sysconfig/network :

```
[root@centos7 ~]# vi /etc/sysconfig/network
[root@centos7 ~]# cat /etc/sysconfig/network
# Created by anaconda
NETWORKING=yes
HOSTNAME=worker3.ittraining.loc
```

Activez l'adresse IP 192.168.56.7 :

```
[root@centos7 ~]# nmcli connection up ip_enp0s8
```

Fermez le terminal courant et ouvrez un autre terminal. Connectez-vous au serverXX :

```
$ ssh desktop@serverXX.ittraining.network
desktop@serverXX.ittraining.network's password:
```

Démarrez la VM master1 :

```
desktop@serverXX:~$ VBoxManage startvm master1 --type headless
```

Connectez-vous à la VM worker3 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.7
The authenticity of host '192.168.56.7 (192.168.56.7)' can't be established.
ECDSA key fingerprint is SHA256:p5z2DKHnUDZcE3RKKo5AbZiVHEe4MPj0qMRug9tAq7M.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.56.7' (ECDSA) to the list of known hosts.
trainee@192.168.56.7's password: trainee
Last login: Tue Sep 15 10:42:01 2020 from 192.168.56.1
[trainee@worker3 ~]$
```

Créez le repository ambari dans yum :

```
[trainee@worker3 ~]$ su -
Password: fenestros
[root@worker3 ~]# vi /etc/yum.repos.d/ambari.repo
[root@worker3 ~]# cat /etc/yum.repos.d/ambari.repo
[ambari]
name = Ambari Repo
baseurl = http://master1.ittraining.loc/ambari/centos7/2.7.4.0-118
gpgcheck = 0
```

Mettez à jour la base de données des dépôts dans yum :

```
[root@worker3 ~]# yum clean all
Loaded plugins: fastestmirror
Cleaning repos: ambari base extras updates
Cleaning up list of fastest mirrors

[root@worker3 ~]# yum makecache
Loaded plugins: fastestmirror
Determining fastest mirrors
 * base: mirroir.wptheme.fr
 * extras: ftp.rezopole.net
 * updates: mirroir.wptheme.fr
ambari
| 2.9 kB  00:00:00
base
| 3.6 kB  00:00:00
extras
| 2.9 kB  00:00:00
updates
| 2.9 kB  00:00:00
(1/13): ambari/filelists_db
| 104 kB  00:00:00
(2/13): ambari/primary_db
|  25 kB  00:00:00
```

```
(3/13): ambari/other_db
| 1.4 kB  00:00:00
(4/13): base/7/x86_64/group_gz
| 153 kB  00:00:00
(5/13): base/7/x86_64/filelists_db
| 7.1 MB  00:00:01
(6/13): extras/7/x86_64/filelists_db
| 217 kB  00:00:00
(7/13): extras/7/x86_64/primary_db
| 206 kB  00:00:00
(8/13): extras/7/x86_64/other_db
| 124 kB  00:00:00
(9/13): updates/7/x86_64/other_db
| 316 kB  00:00:00
(10/13): base/7/x86_64/other_db
| 2.6 MB  00:00:01
(11/13): updates/7/x86_64/filelists_db
| 2.4 MB  00:00:01
(12/13): base/7/x86_64/primary_db
| 6.1 MB  00:00:03
(13/13): updates/7/x86_64/primary_db
| 4.5 MB  00:00:07
Metadata Cache Created
```

Installez ambari agent :

```
[root@worker3 ~]# yum -y install ambari-agent
```

Modifiez le fichier /etc/ambari-agent/conf/ambari-agent.ini :

```
[root@worker3 ~]# vi /etc/ambari-agent/conf/ambari-agent.ini
...
[server]
hostname=master1.ittraining.loc  <----------------------modifier de localhost à master1.ittraining.loc
```

```
...
```

Démarrez le service ambari-agent :

```
[root@worker3 ~]# 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
Agent PID at: /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
```

Arrêtez la VM worker3 :

```
[root@worker3 ~]# shutdown -h now
Connection to 192.168.56.7 closed by remote host.
Connection to 192.168.56.7 closed.
```

Arrêtez la VM master1 :

```
desktop@serverXX:~$ VBoxManage controlvm master1 poweroff
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
```

Prendre des Snapshots

Avant de poursuivre, prenez une instantanée de chaque VM :

```
desktop@serverXX:~$ VBoxManage snapshot master1 take "snapshot1" --description "Fresh install"
```

```
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
Snapshot taken. UUID: 24bcd65c-b648-4e30-a46a-7f41e47a33e3
desktop@serverXX:~$ VBoxManage snapshot master2 take "snapshot1" --description "Fresh install"
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
Snapshot taken. UUID: a6442d0e-828f-4db4-9a99-42819e131271
desktop@serverXX:~$ VBoxManage snapshot master3 take "snapshot1" --description "Fresh install"
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
Snapshot taken. UUID: a4370cc7-96db-478a-b46f-ebf8e86d22b9
desktop@serverXX:~$ VBoxManage snapshot worker1 take "snapshot1" --description "Fresh install"
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
Snapshot taken. UUID: 13b665ff-d808-4c7c-9f1d-11dbe0df61bc
desktop@serverXX:~$ VBoxManage snapshot worker2 take "snapshot1" --description "Fresh install"
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
Snapshot taken. UUID: 832b0513-48c9-449f-845d-facd9b1b2298
desktop@serverXX:~$ VBoxManage snapshot worker3 take "snapshot1" --description "Fresh install"
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
Snapshot taken. UUID: b219559d-ecc9-4938-815e-6da06d762b7a
```

Démarrer les Machines Virtuelles

Démarrez les VMs :

```
desktop@serverXX:~$ VBoxManage startvm master1 --type headless
desktop@serverXX:~$ VBoxManage startvm master2 --type headless
desktop@serverXX:~$ VBoxManage startvm master3 --type headless
desktop@serverXX:~$ VBoxManage startvm worker1 --type headless
desktop@serverXX:~$ VBoxManage startvm worker2 --type headless
desktop@serverXX:~$ VBoxManage startvm worker3 --type headless
```

Se Connecter aux Machines Virtuelles

En utilisant une première connexion SSH, tapez la commande suivante pour vous connecter à la machine **master1** :

```
desktop@serverXX:~$ ssh -l trainee master1.ittraining.loc
```

En utilisant une deuxième connexion SSH, tapez la commande suivante pour vous connecter à la machine **master2** :

```
desktop@serverXX:~$ ssh -l trainee master2.ittraining.loc
```

En utilisant une troisième connexion SSH, tapez la commande suivante pour vous connecter à la machine **master3** :

```
desktop@serverXX:~$ ssh -l trainee master3.ittraining.loc
```

En utilisant une quatrième connexion SSH, tapez la commande suivante pour vous connecter à la machine **worker1** :

```
desktop@serverXX:~$ ssh -l trainee worker1.ittraining.loc
```

En utilisant une cinquième connexion SSH, tapez la commande suivante pour vous connecter à la machine **worker2** :

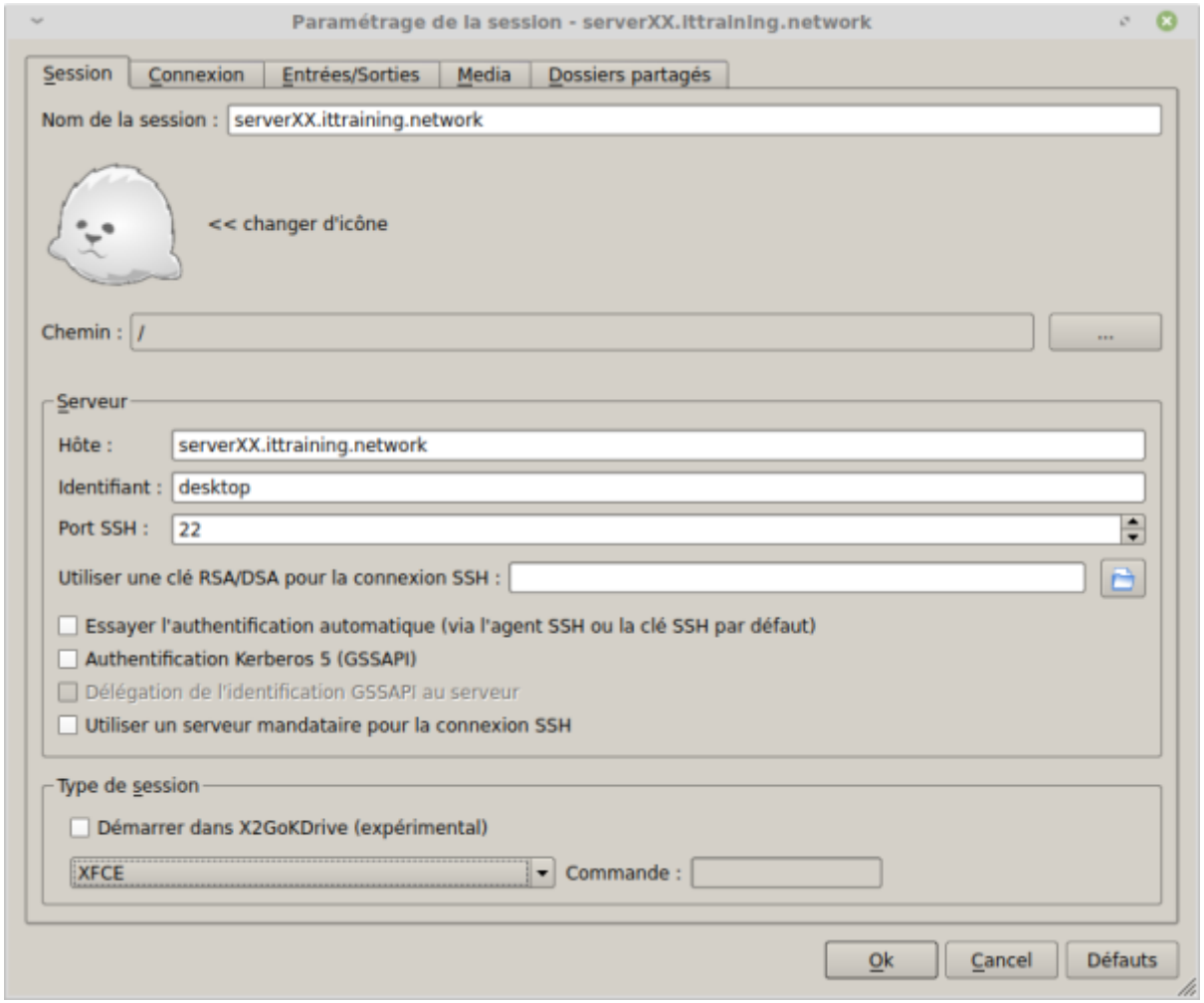
```
desktop@serverXX:~$ ssh -l trainee worker2.ittraining.loc
```

En utilisant une sixième connexion SSH, tapez la commande suivante pour vous connecter à la machine **worker3** :

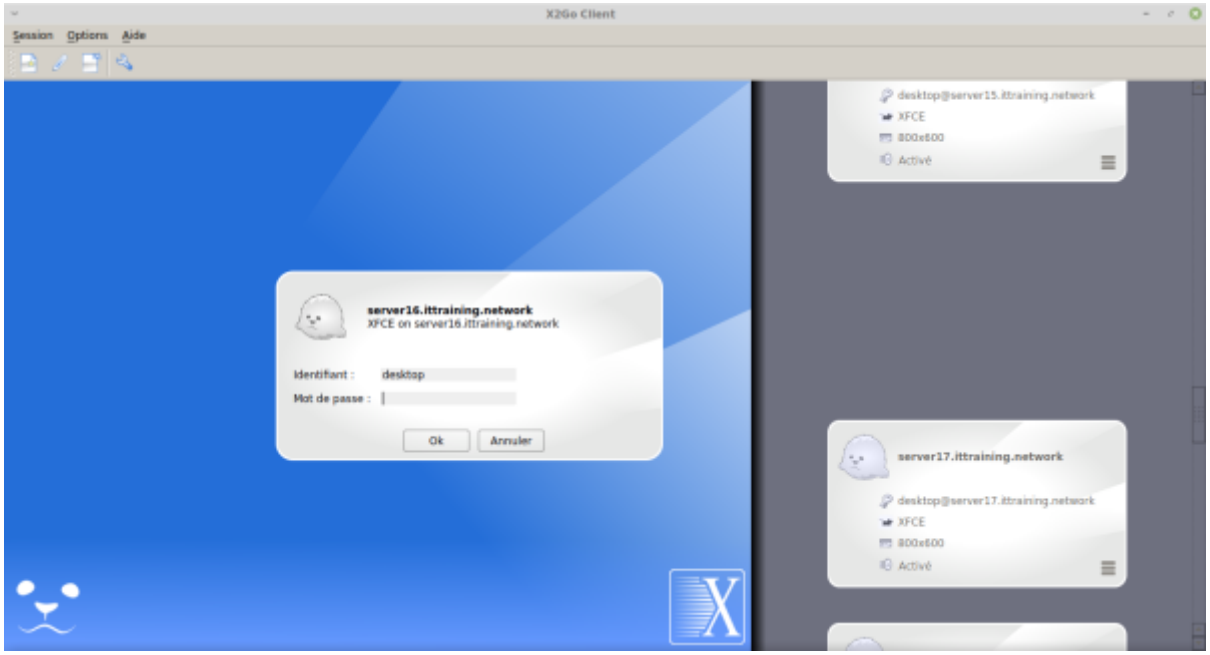
```
desktop@serverXX:~$ ssh -l trainee worker3.ittraining.loc
```

Se connecter en mode graphique au serverXX.ittraining.network

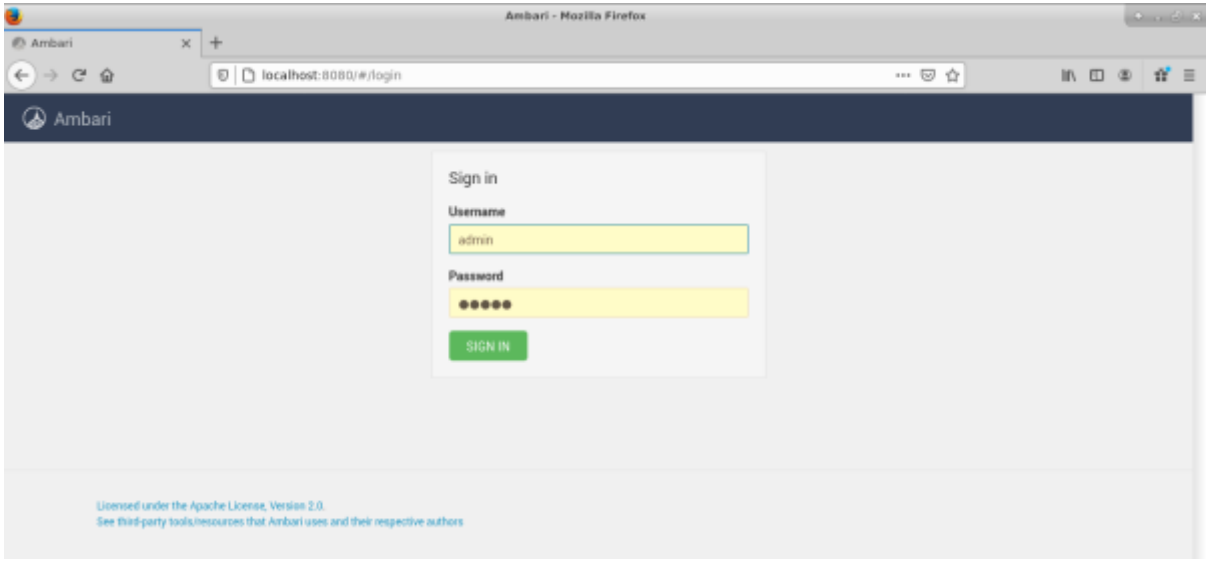
Téléchargez le client **X2Go** (https://wiki.x2go.org/doku.php/download:start) et installez-le. Créez une nouvelle connexion **XFCE** pour votre serveur :



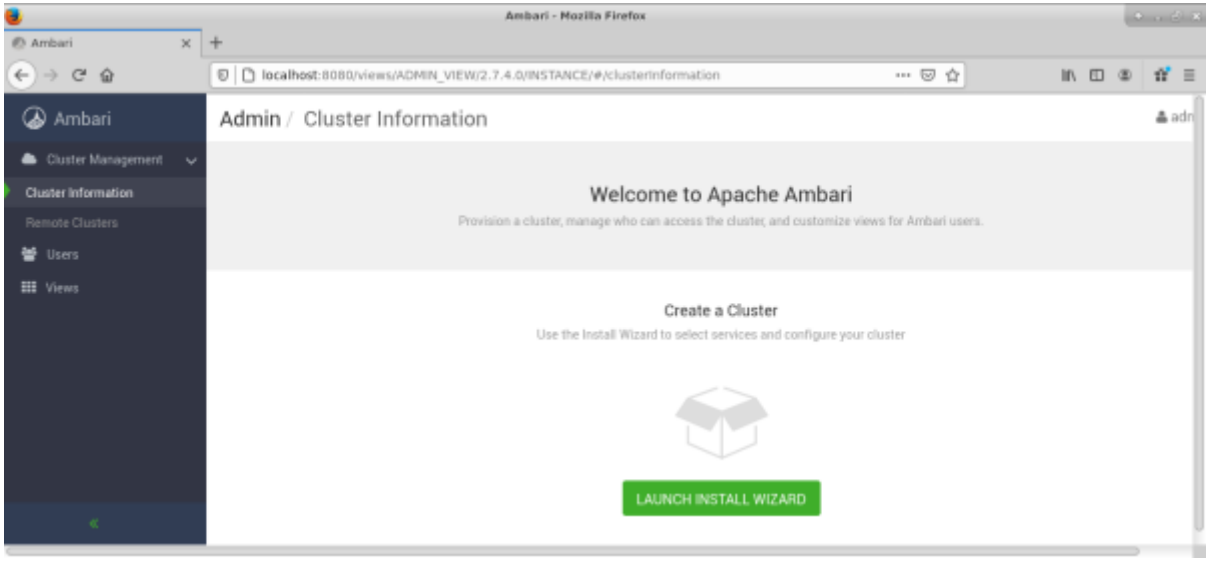
Connectez-vous au serverXX :



Ouvrez le navigateur Firefox et saisissez l'URL http://master1.ittraining.loc:8080. Entrez l'utilisateur **admin** et le mot de passe **admin** et cliquez sur le bouton **SIGN IN** :

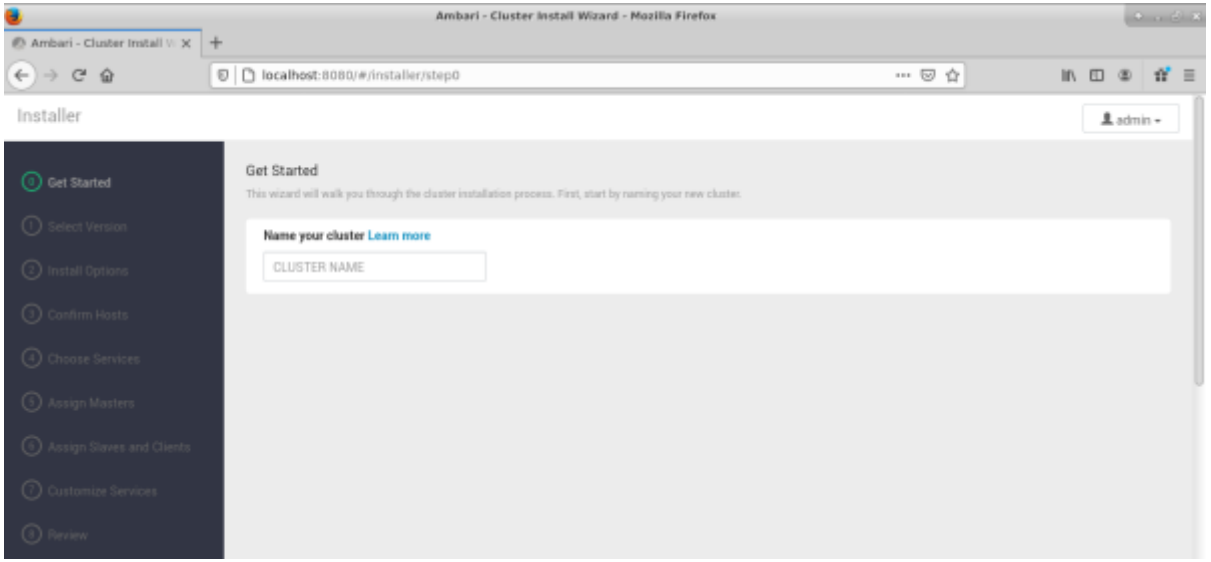


Vous êtes maintenant dans la console d'Ambari :



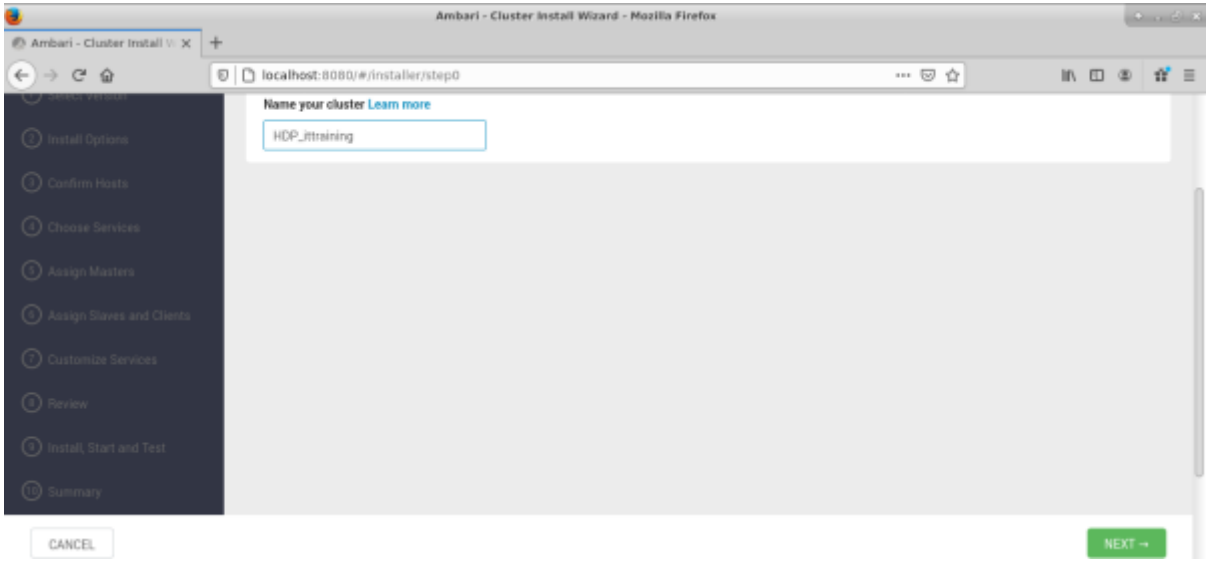
Utiliser la console Ambari

Cliquez sur le bouton **LAUNCH INSTALL WIZARD** :

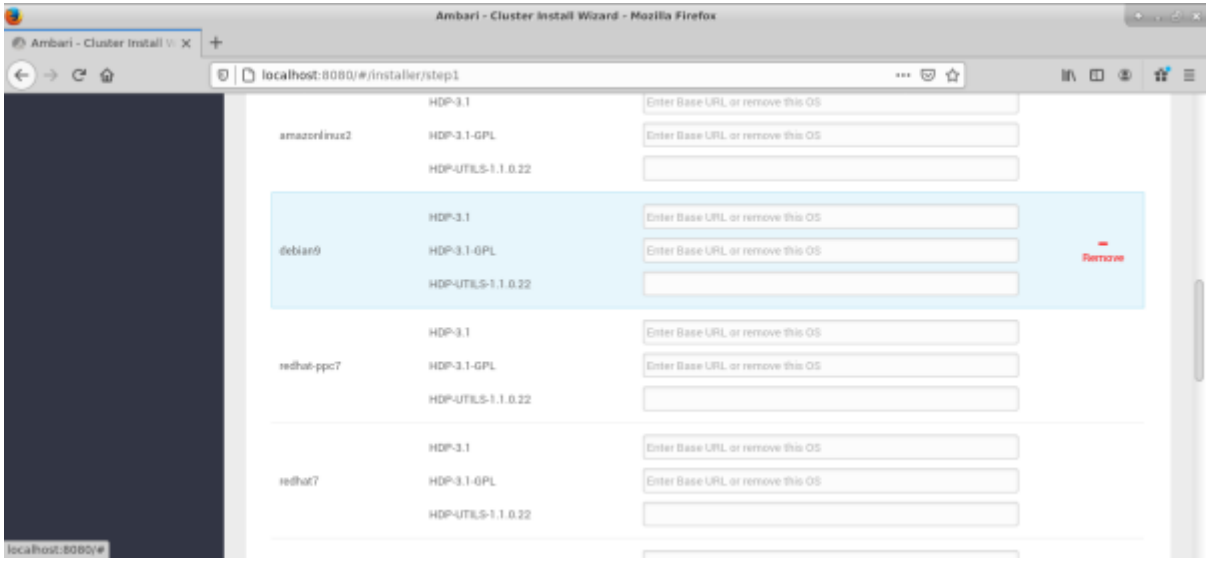


Get Started

Saisissez le nom **HDP_ittraining** en tant que CLUSTER NAME et cliquez sur le bouton **NEXT** :



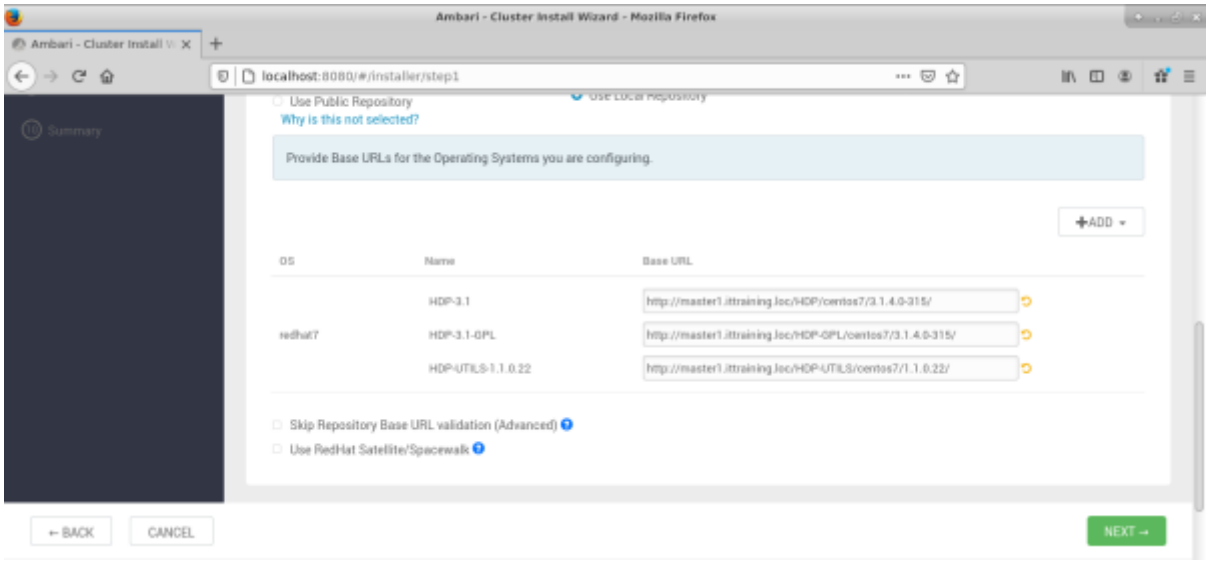
Dans la liste des systèmes d'exploitation, supprimez tous les OS **sauf** redhat7 :



Ouvrez ensuite le fichier **/root/repositories** dans la VM **master1** :

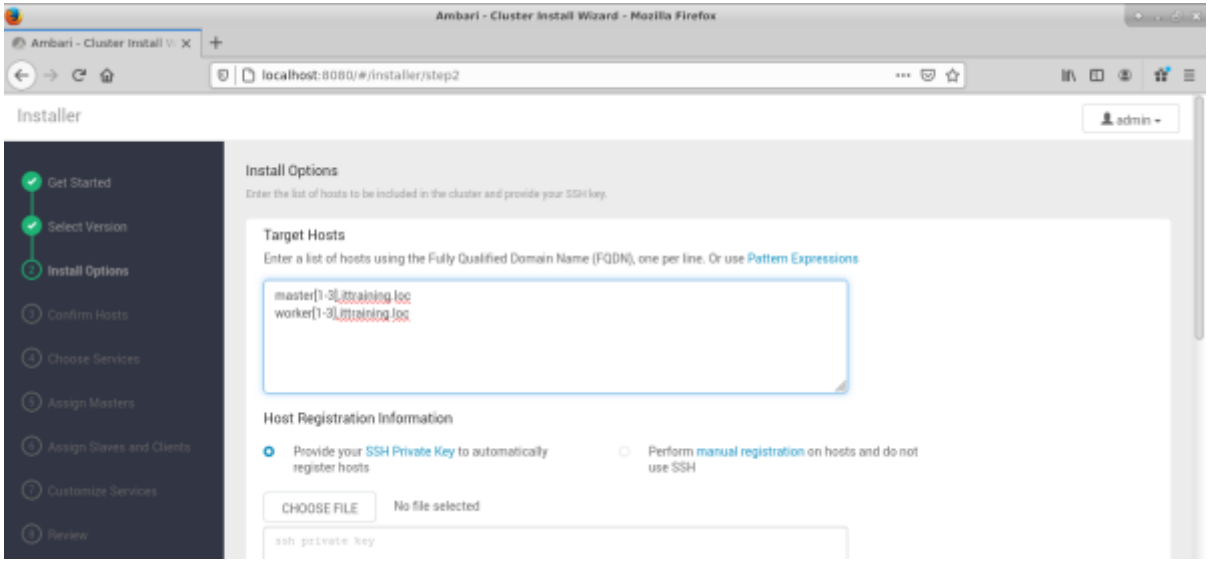
```
[root@master1 ~]# cat repositories
http://master1.ittraining.loc/HDP/centos7/3.1.4.0-315/
http://master1.ittraining.loc/HDP-GPL/centos7/3.1.4.0-315/
http://master1.ittraining.loc/HDP-UTILS/centos7/1.1.0.22/
http://master1.ittraining.loc/ambari/centos7/2.7.4.0-118
```

Copiez ensuite les URLs à partir du fichier **repositories** et collez-les aux emplacements prévus dans la console puis cliquez sur le bouton **NEXT**:

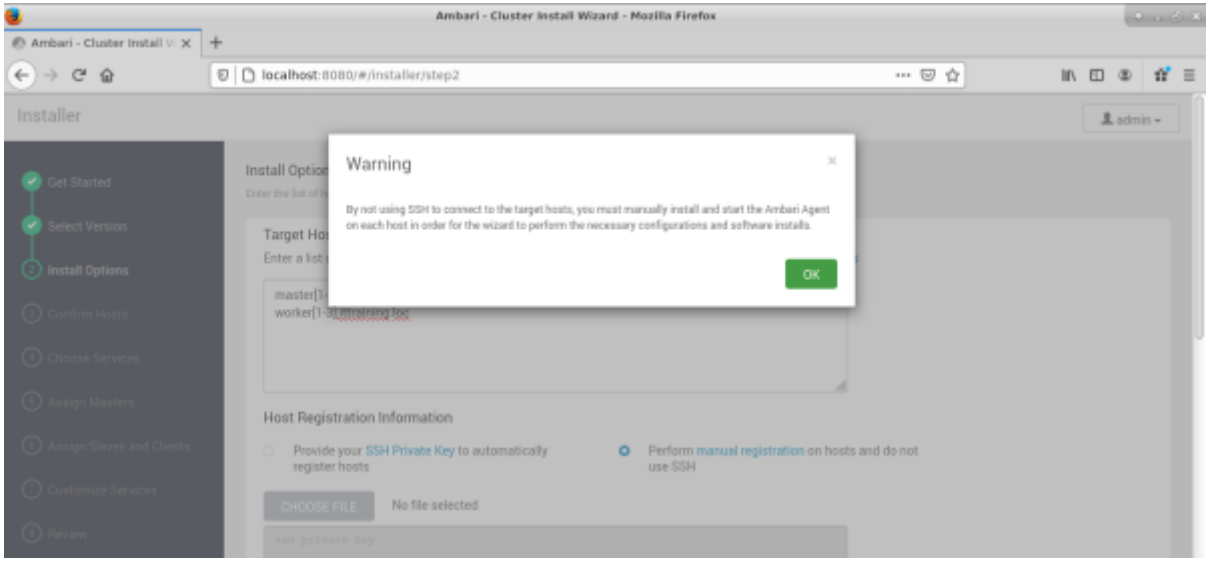


Install Options

Entrez la liste des serveurs dans l'emplacement prévu. Notez ici l'utilisation d'une expression régulière **[1-3]** :

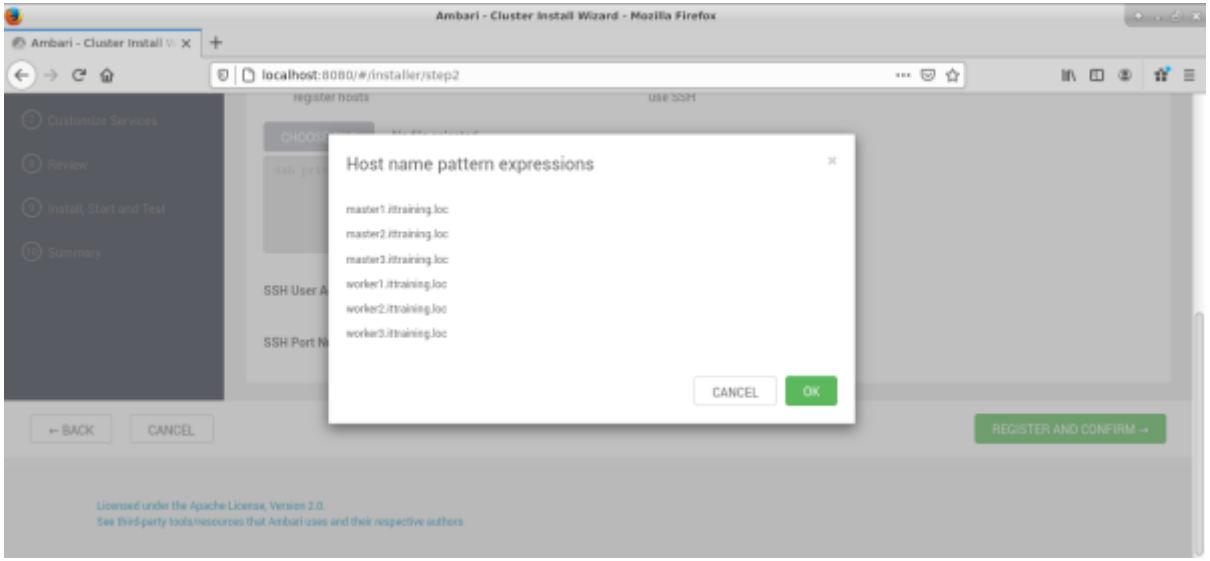


Choisissez l'option **Perform manual registration and do not use SSH** :

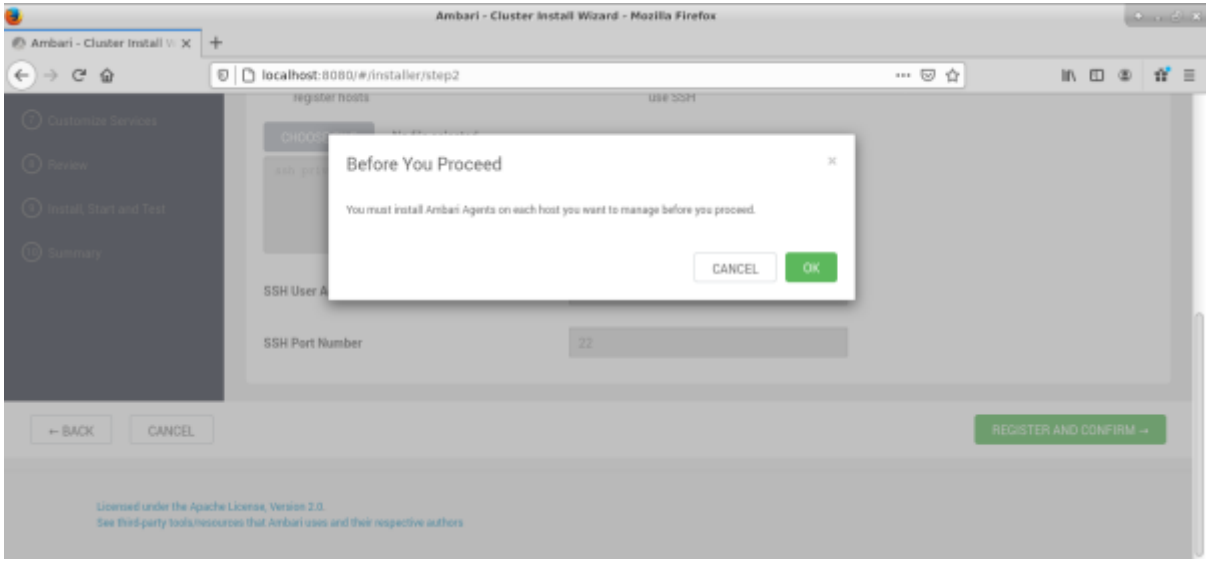


Confirm Hosts

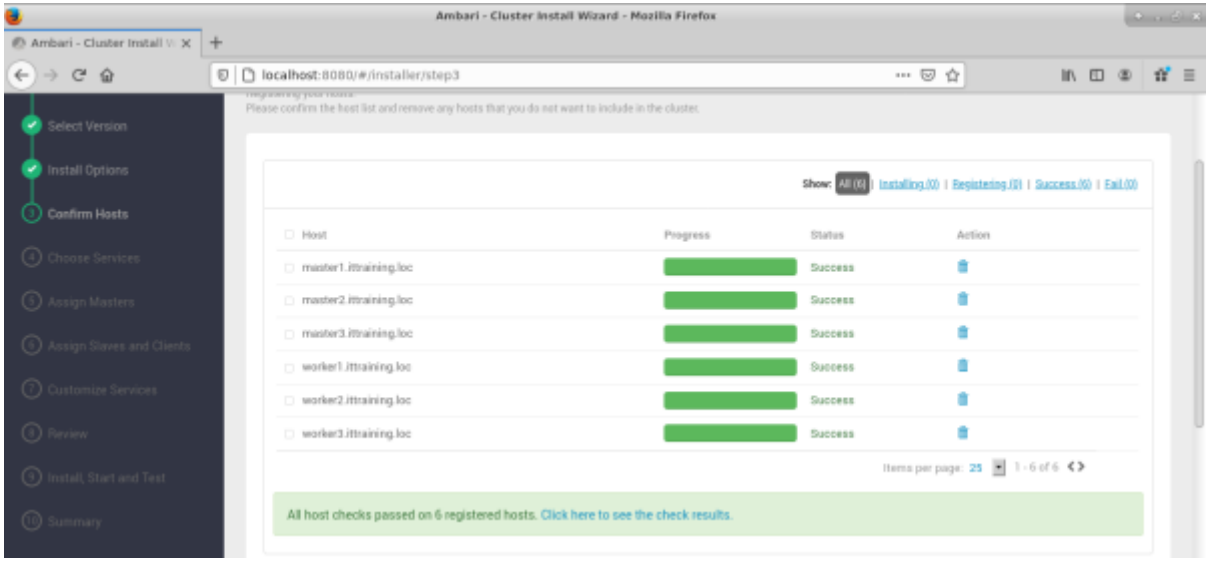
Validez la boîte d'avertissement et cliquez sur le bouton **REGISTER AND CONFIRM**. L'assistant résout les expressions régulières dans les nom d'hôtes et vous demande de confirmer. Cliquez donc sur le bouton **OK** :



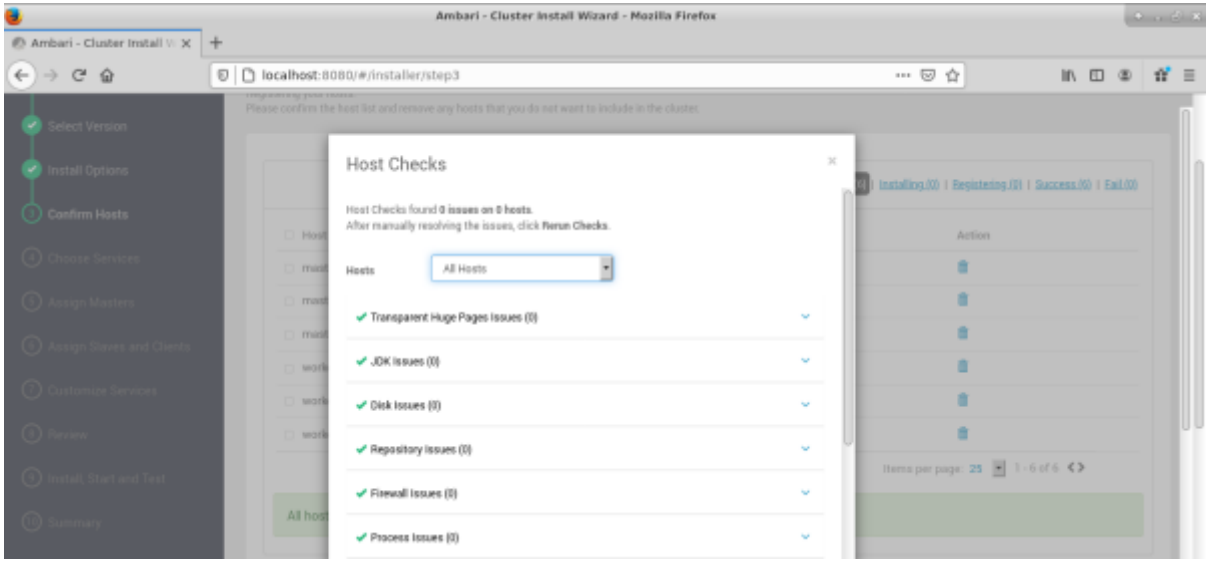
Cliquez sur le bouton **OK** de la boîte d'avertissement **Before You Proceed** :



L'assistant initialise chaque noeud du cluster puis vérifie que les pré-requis pour continuer sont satisfaits :

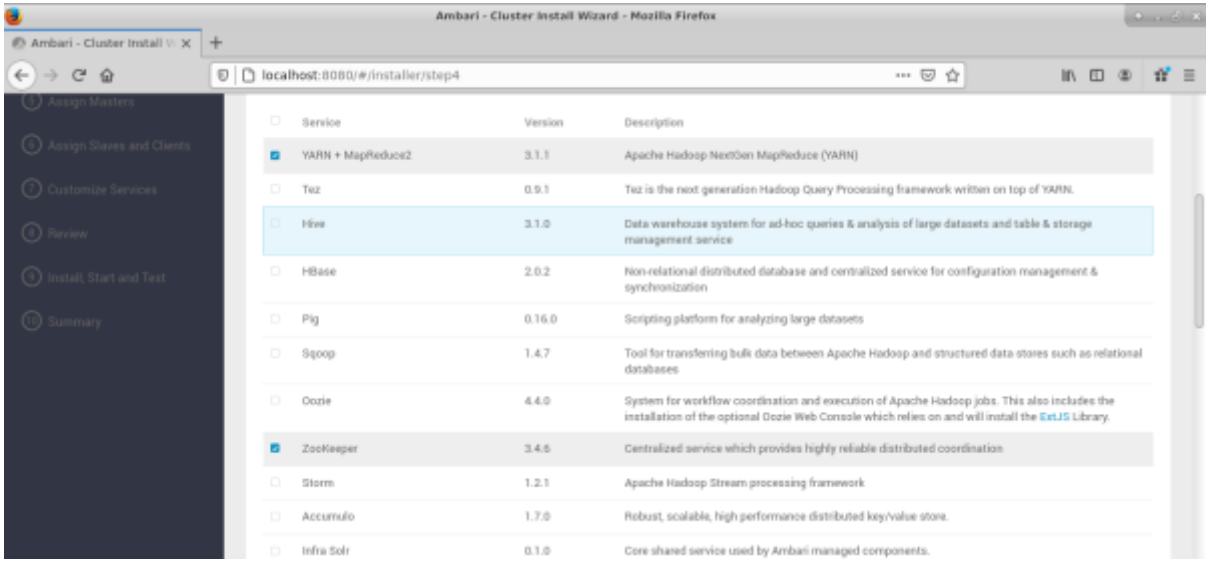


Pour consulter la liste des pré-requis en cas de problème, cliquez sur le lien **Click here to see the check results** :

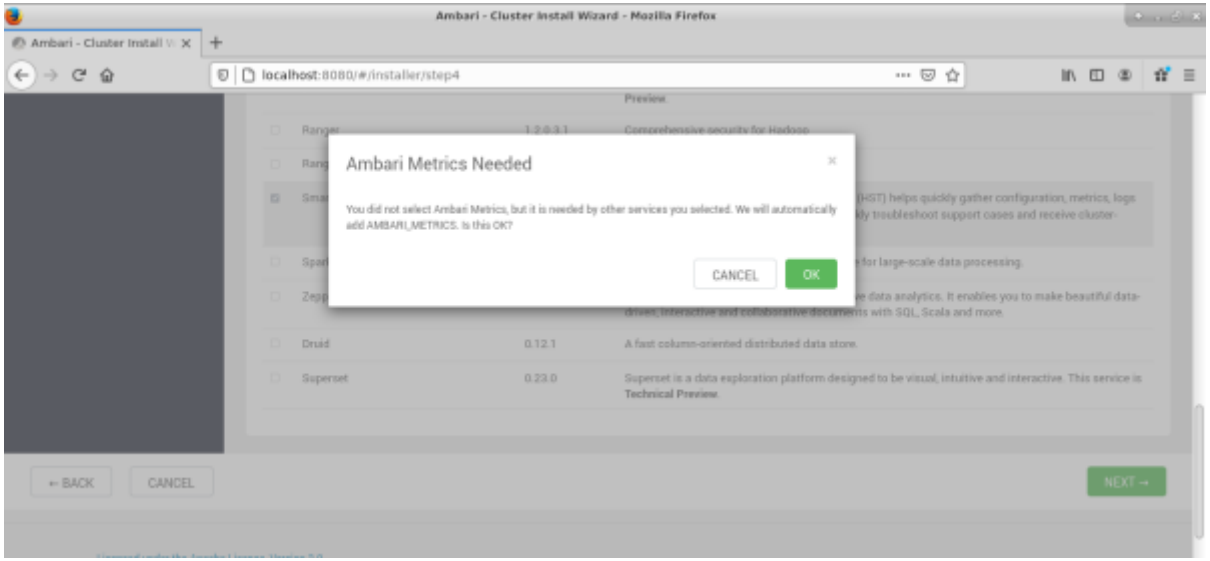


Choose Services

Fermez la fenêtre **Host checks** et cliquez sur le bouton **NEXT**. Choisissez maintenant les services que vous souhaitez ajouter. Pour effectuer une installation minimaliste dans un premier temps, ne cochez que **HDFS**, **YARN + MapReduce2** et **ZooKeeper** puis cliquez sur le bouton **NEXT** :

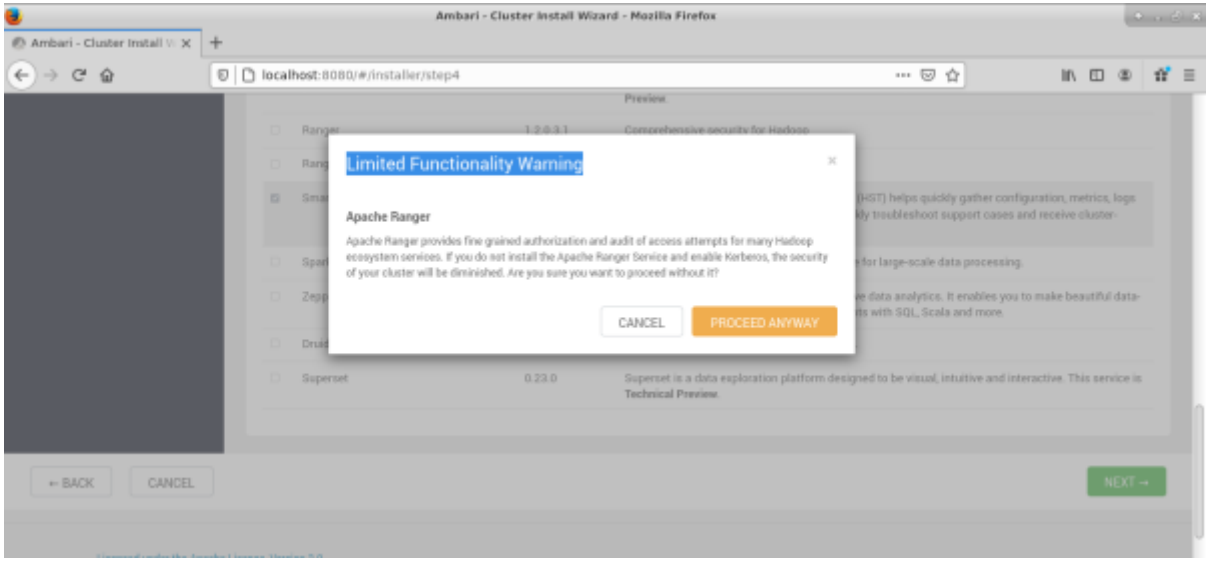


Notez qu'en cas de dépendance manquante, l'assistant vous le rappelle :



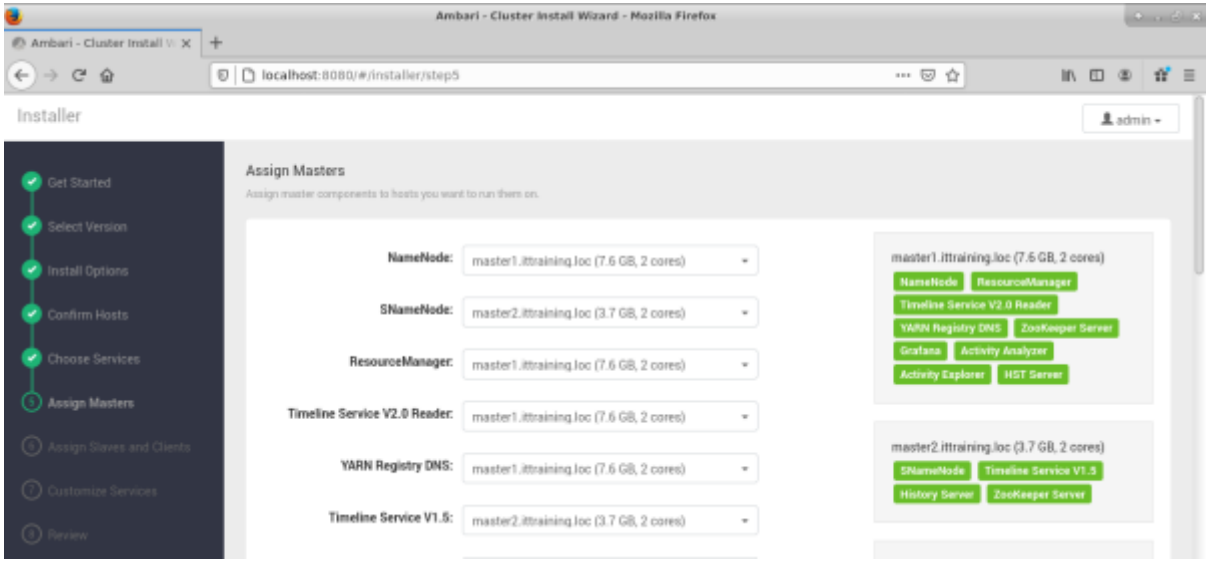
Cliquez sur le bouton **OK**. L'assistant vous affiche une fenêtre **Limited Functionality Warning** pour vous avertir des fonctionalités limitées dues au

fait qu'**Apache Ranger** et **Apache Atlas** n'ont pas été sélectionnés. Cliquez simplement sur le bouton **PROCEED ANYWAY** chaque fois :



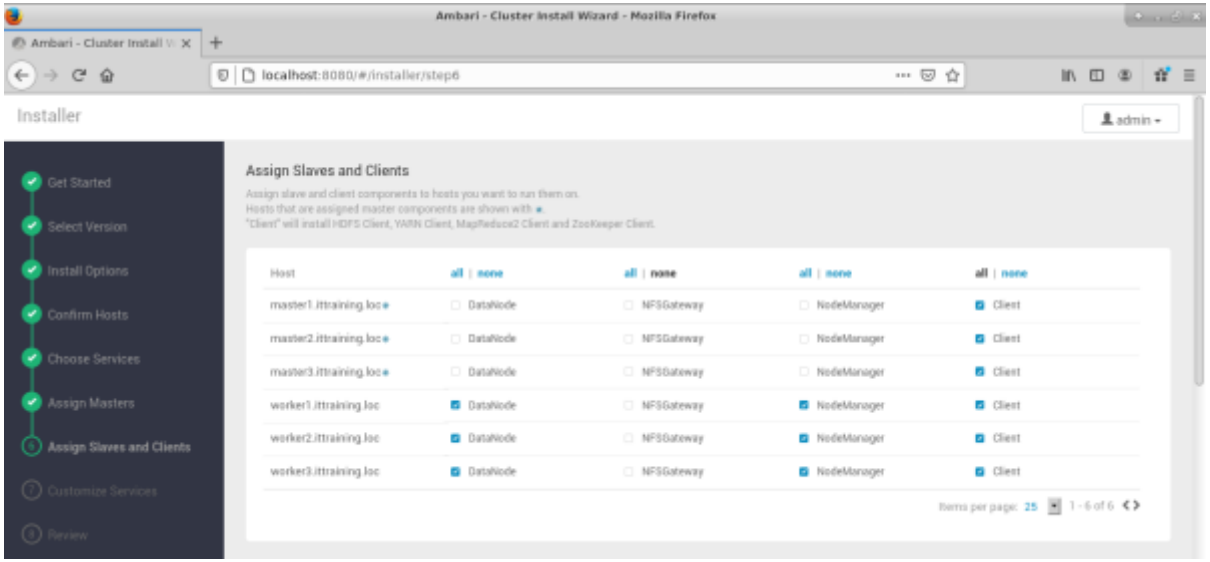
Assign Masters

L'assistant vous propose maintenant la possibilité d'équilibrer la charge sur les serveurs dont il a connaissance. Modifiez la valeur du **Metrics Collector** à **master3.ittraining.loc** puis cliquez sur le bouton **NEXT** :



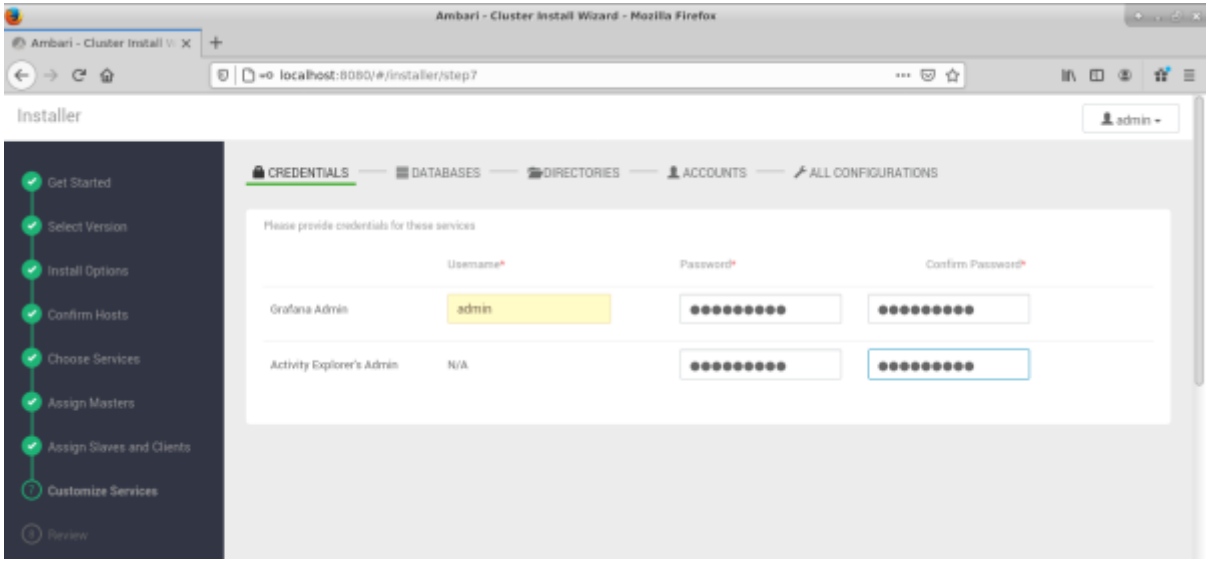
Assign Slaves and Clients

L'assistant vous propose maintenant d'assigner des composants à chaque hôte. Les hôtes ayant des composants maître sont marqués avec une étoile. Cochez **Client** pour chaque hôte puis cliquez sur le bouton **NEXT** :

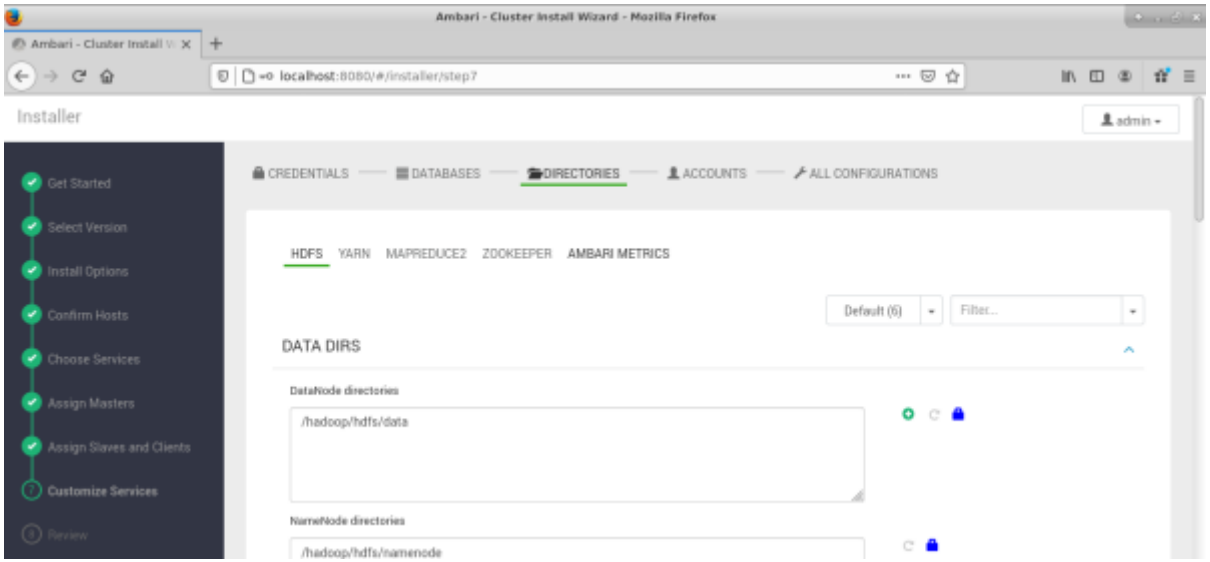


Customize Services

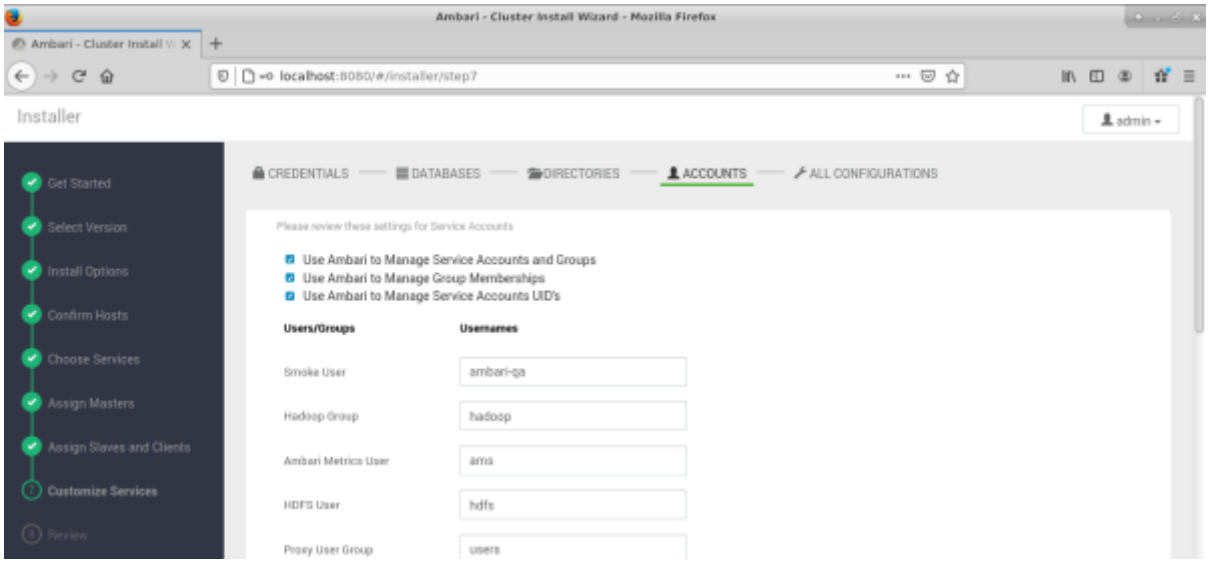
Ensuite l'assistant vous demande de spécifier les mots de passe que souhaitez utiliser pour **Grafana** et **Activity Explorer**. Saisissez le mot de passe **fenestros** dans chaque cas puis cliquez sur le bouton **NEXT** :



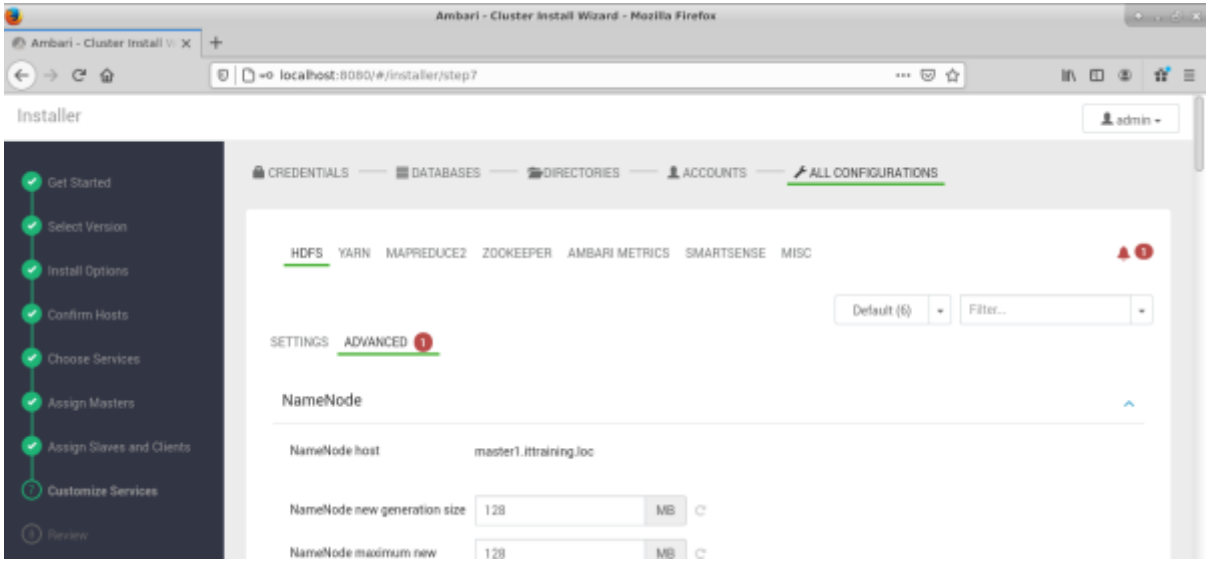
L'assistant vous permet ensuite de modifier les emplacements par défaut des répertoires pour chacune des applications à installer. Cliquez simplement sur le bouton **NEXT** :



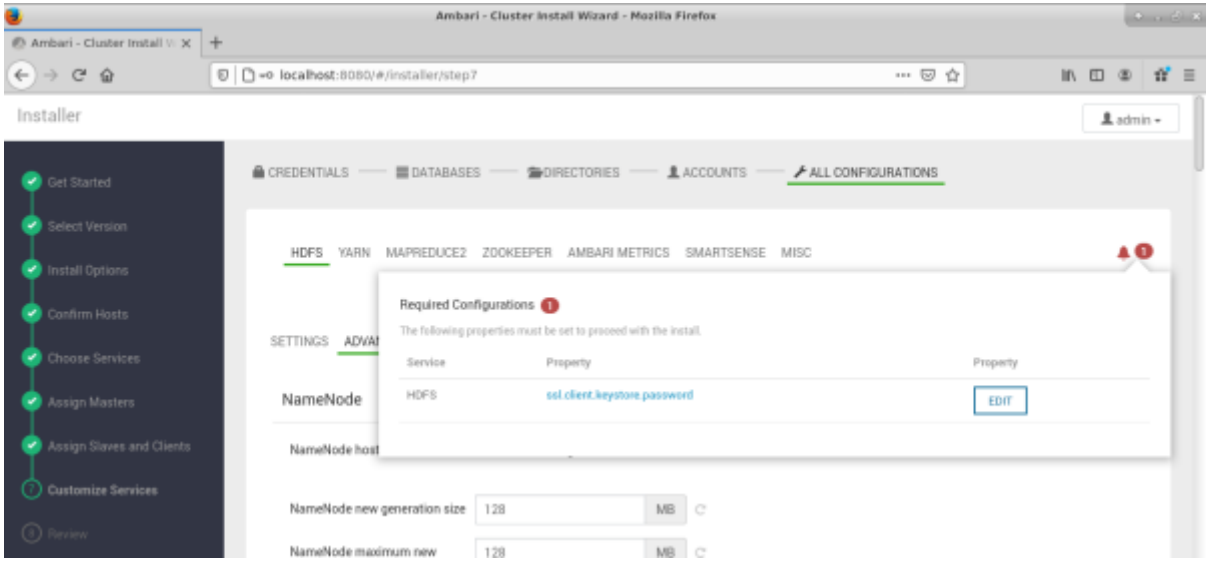
L'assistant vous permet ensuite de modifier les noms des comptes par défaut pour chacune des applications à installer. Cliquez simplement sur le bouton **NEXT** :



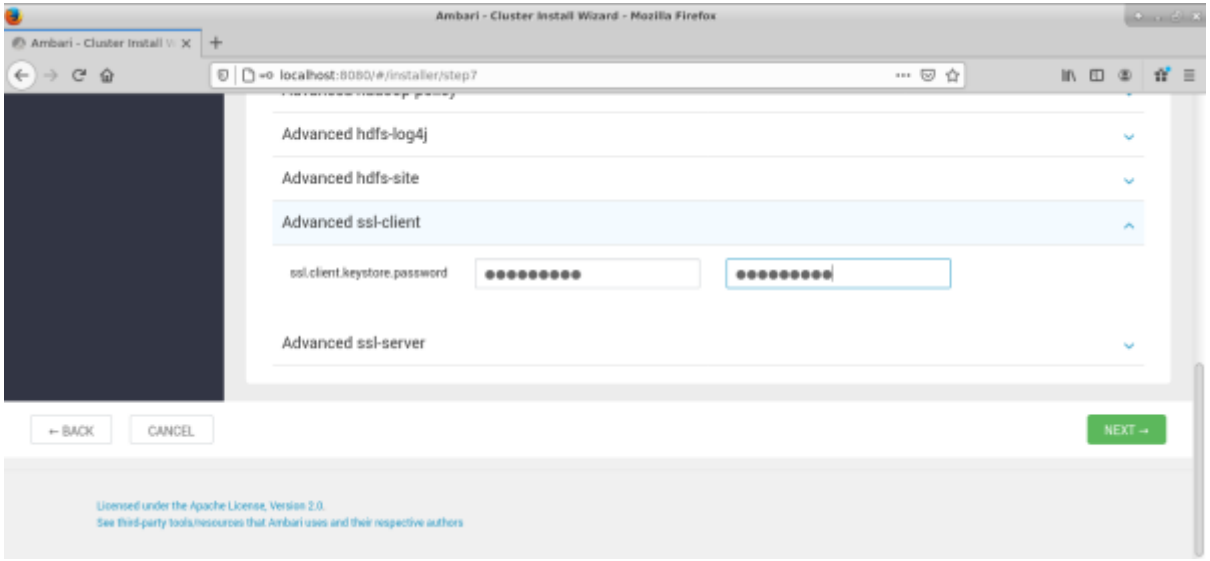
L'assistant vous permet ensuite de modifier les configurations par défaut pour chacune des applications à installer. Notez ici qu'il y a un avertissement en rouge pour la configuration avancée :



Cliquez donc sur la cloche en rouge :

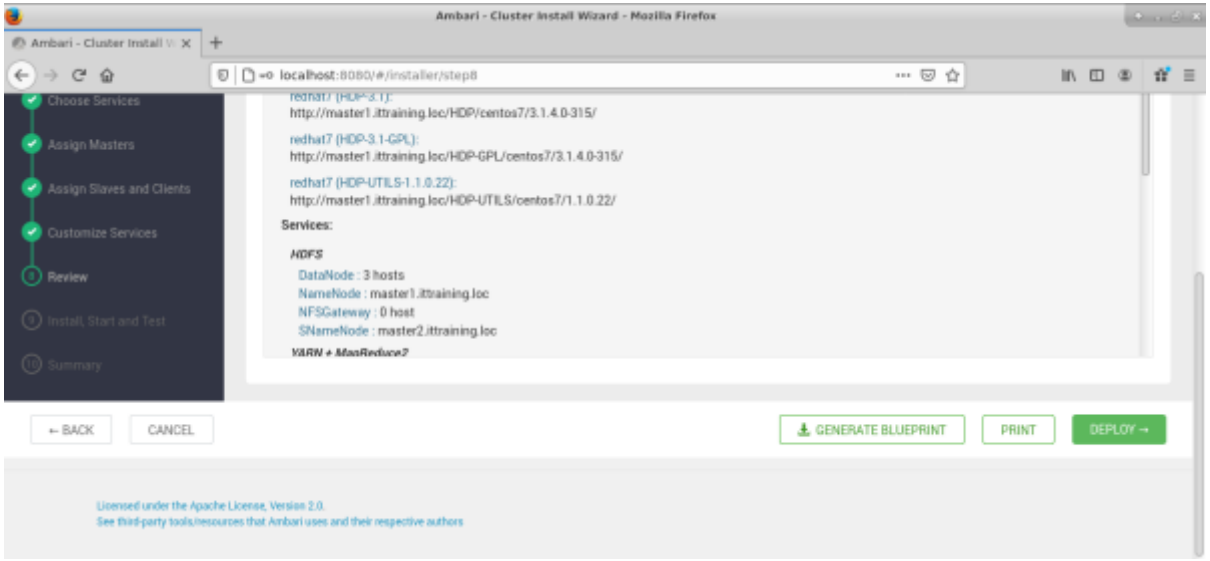


Puis sur le bouton **EDIT**. entrez le mot de passe **fenestros** puis cliquez sur le bouton **NEXT** :



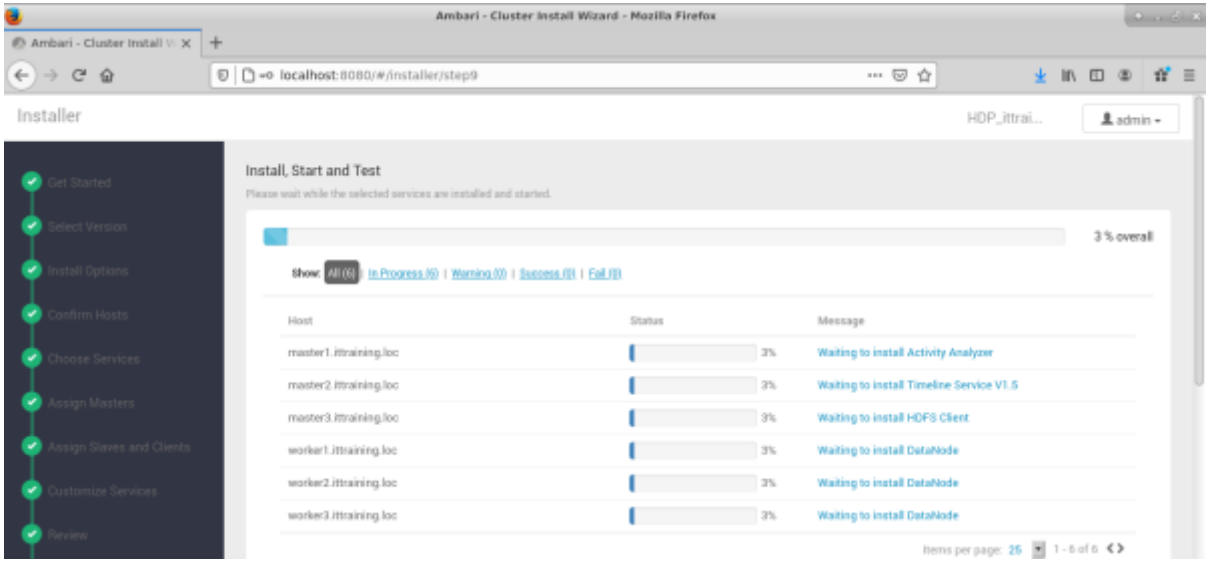
Review

L'assitant vous propose maintenant un résumé de vos choix ainsi que la possibilité de télécharger un fichier de template à utiliser pour re-créer un cluster identique par la suite en cliquant sur le bouton **GENERATE BLUEPRINT** :

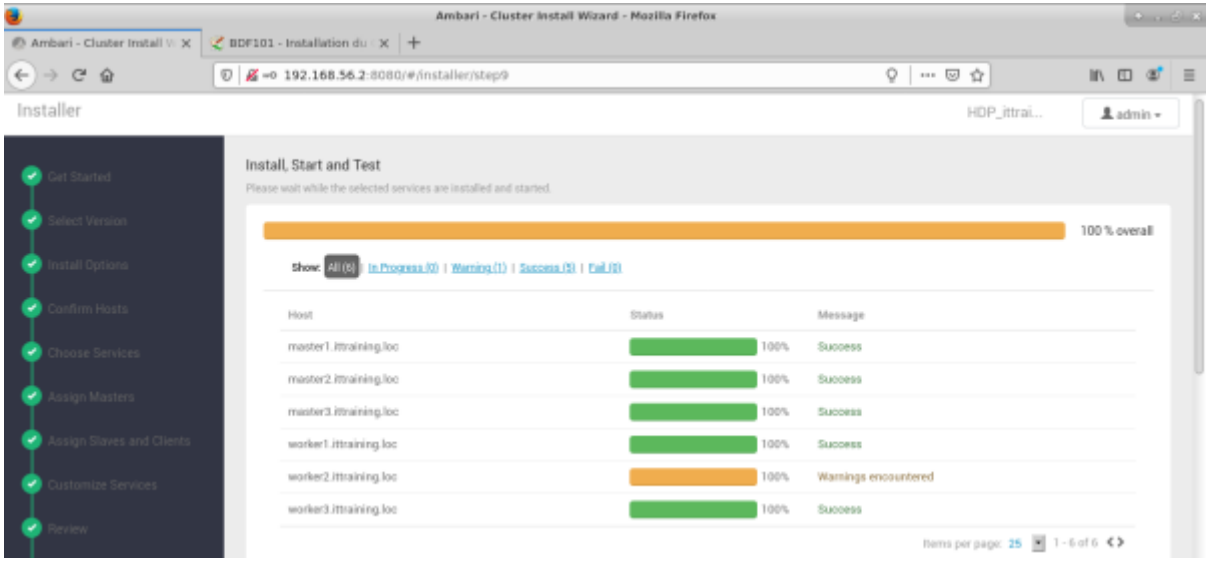


Install, Start and Test

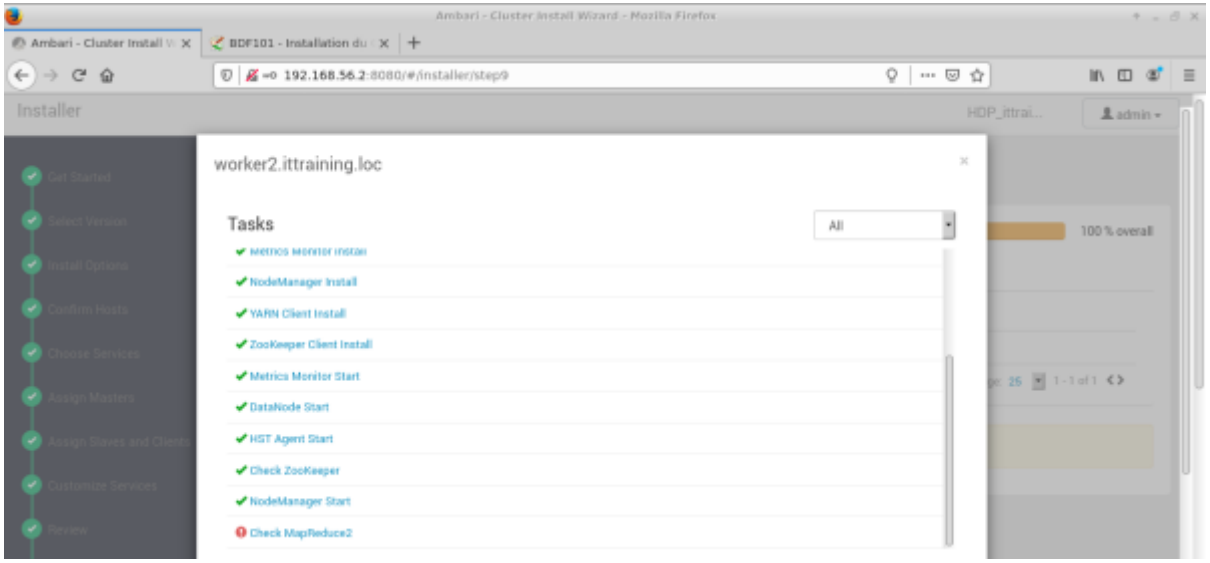
Téléchargez le template puis cliquez sur le bouton **DEPLOY** :

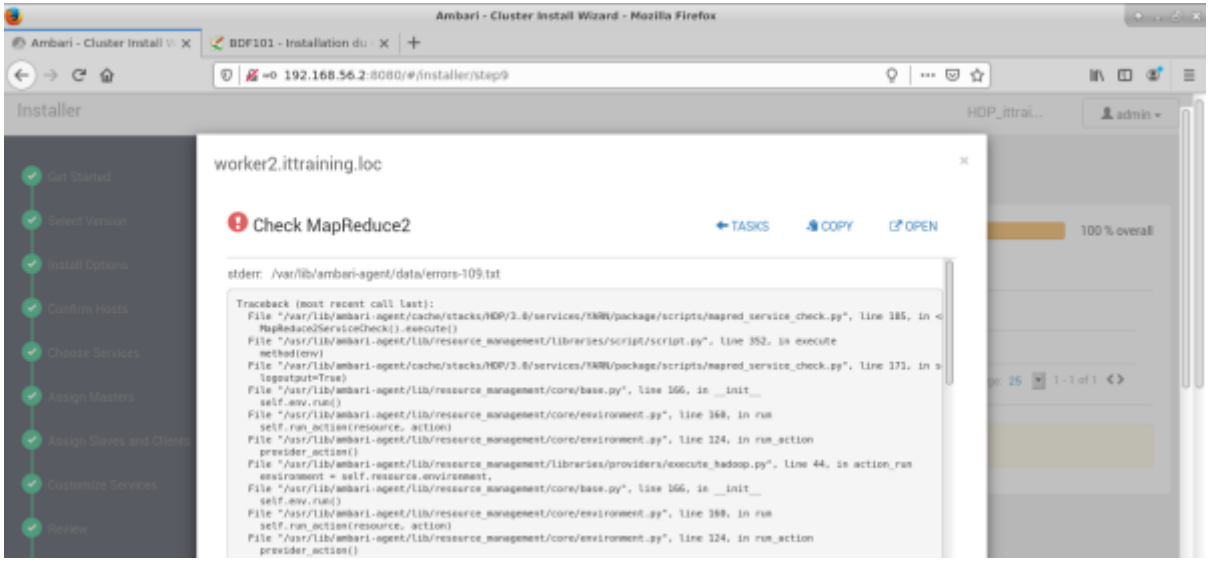


A l'issu du déploiement, un résumé de la situation vous informe d'éventuelles erreurs :

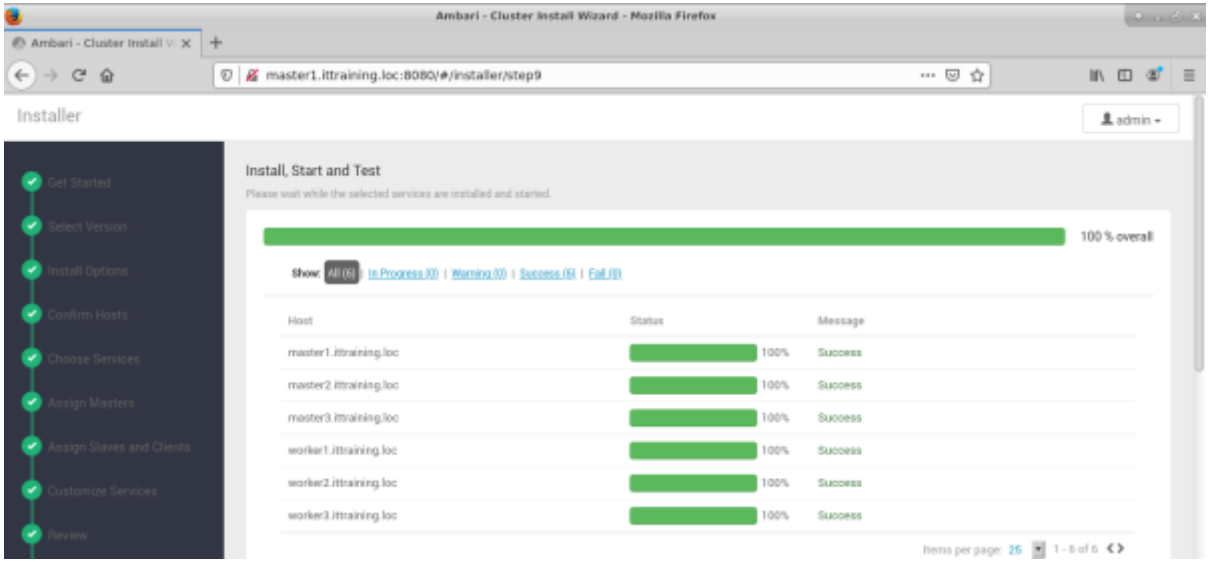


En cas d'erreurs, il vous est possible de consulter les détails de celles-ci :

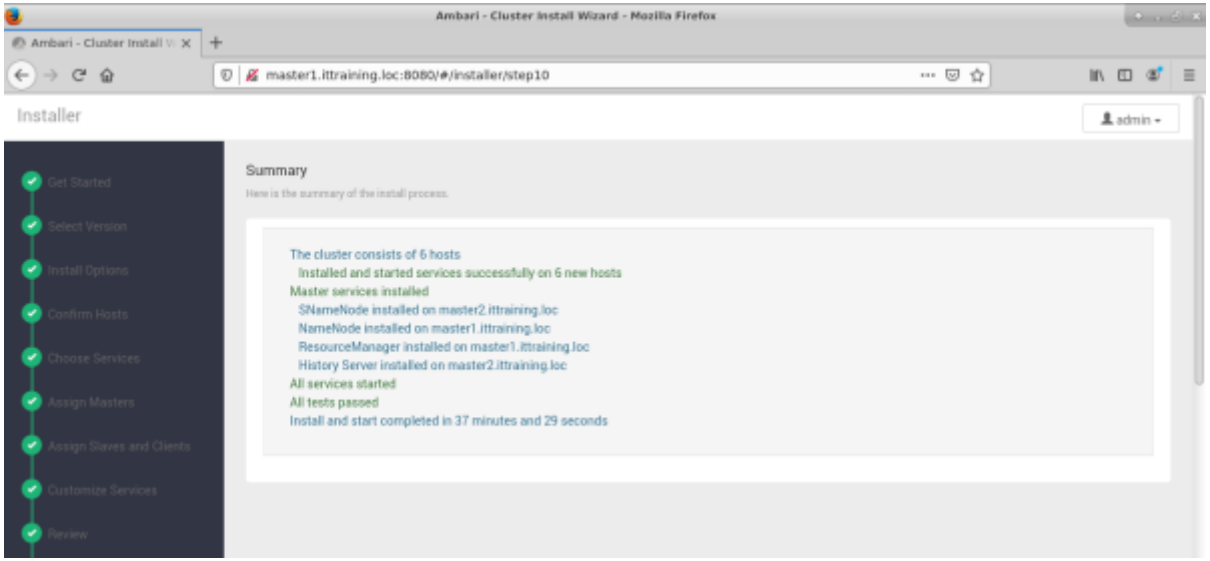




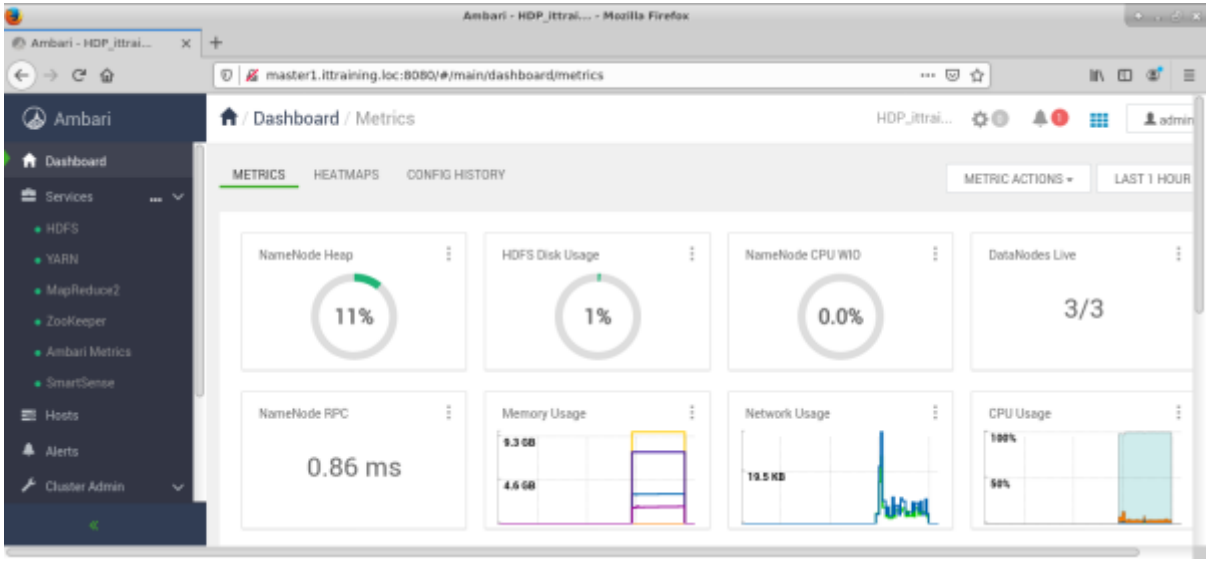
Une fois les erreurs corrigées, il convient de déployer de nouveau le cluster :



Cette fois, le résumé ne doit pas montrer d'erreurs :



En validant le déploiement, vous arrivez sur le console de gestion :



<html>

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