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BDF101 - Ajouter un Hôte et des Services à un Cluster HDP Existant

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LAB #1 - Préparer l'hôte worker4

Commencez par configurer la redirection de port pour la VM sur nic1 :

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

Configurez ensuite nic3 en Réseau Privé Hôte :

```
desktop@serverXX:~$ VBoxManage modifyvm CentOS_7_8 --nic3 hostonly --hostonlyadapter2 vboxnet0
```

Afin d'éviter un conflit d'adresse IP avec **master1**, désactivez nic2 :

```
desktop@serverXX:~$ VBoxManage modifyvm CentOS_7_8 --nic2 none
```

Démarrez maintenant la VM **CentOS_7_8** :

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

Éditez le fichier /etc/hosts du serverXX en ajoutant la ligne pour **worker4.ittraining.loc** :

```
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
192.168.56.8   worker4.ittraining.loc  worker4
root@serverXX:~# exit
logout
```

Connectez-vous à la VM **CentOS_7_8** en utilisant la redirection de port de nic1 :

```
desktop@server40:~$ ssh -l trainee localhost -p 3022
trainee@localhost's password: trainee
Last login: Tue Sep 15 06:53:32 2020 from 192.168.56.1
```

Devenez root :

```
[trainee@centos7 ~]$ su -
Password: fenestros
Last login: Tue Sep 15 06:54:53 CEST 2020 on pts/1
```

Editez le fichier /etc/hosts de la VM en ajoutant la ligne pour **worker4.ittraining.loc** :

```
[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
```

```
192.168.56.8   worker4.ittraining.loc  worker4
```

Configurez ensuite la troisième interface **enp0s9** réseau en IP fixe :

```
[root@centos7 ~]# nmcli connection add con-name ip_enp0s9 ifname enp0s9 type ethernet ip4 192.168.56.8/24 gw4
10.0.2.2
Connection 'ip_enp0s9' (2d9b46b3-c575-4a16-86b5-dc4ed540f866) successfully added.
[root@centos7 ~]# nmcli connection up ip_enp0s9
```

Fermez le terminal figé et ouvrez un nouveau terminal. Connectez-vous à votre serverXX :

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

Reconnectez-vous à la VM en utilisant l'adresse 192.168.56.8 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.8
The authenticity of host '192.168.56.8 (192.168.56.8)' can't be established.
ECDSA key fingerprint is SHA256:p5z2DKHnUDZcE3RKKo5AbZiVHEe4MPj0qMRug9tAq7M.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.56.8' (ECDSA) to the list of known hosts.
trainee@192.168.56.8's password:
Last login: Thu Sep 17 06:29:24 2020 from gateway
[trainee@centos7 ~]$
```

Configurez la première interface réseau **enp0s3** en IP fixe :

```
[trainee@centos7 ~]$ su -
Password: fenestros
Last login: Thu Sep 17 06:31:56 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
Warning: There is another connection with the name 'ip_enp0s3'. Reference the connection by its uuid
'b1ece19a-6dee-49a9-b2f1-95004af3cdc2'
```

```
Connection 'ip_enp0s3' (b1ece19a-6dee-49a9-b2f1-95004af3cdc2) 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)
```

Dernièrement modifiez le nom d'hôte de la VM :

```
[root@centos7 ~]# nmcli general hostname worker4.ittraining.loc
```

Arrêtez la VM et supprimez la redirection de port de 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%
desktop@serverXX:~$ VBoxManage modifyvm CentOS_7_8 --natpf1 delete centos_7_8
```

LAB #2 - Configurer l'hôte worker4

Démarrez la VM **CentOS_7_8** :

```
desktop@serverXX:~$ VBoxManage startvm CentOS_7_8 --type headless
Waiting for VM "CentOS_7_8" to power on...
VM "CentOS_7_8" has been successfully started.
```

Connectez-vous à la VM en utilisant l'adresse 192.168.56.8 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.8
trainee@192.168.56.8's password:
```

```
Last login: Thu Sep 17 06:33:32 2020 from 192.168.56.1
```

Devenez root :

```
[trainee@worker4 ~]$ su -
Password: fenestros
Last login: Thu Sep 17 06:34:38 CEST 2020 on pts/1
```

Editer /etc/sysconfig/network :

```
[root@worker4 ~]# vi /etc/sysconfig/network
[root@worker4 ~]# cat /etc/sysconfig/network
# Created by anaconda
NETWORKING=yes
HOSTNAME=worker4.ittraining.loc
```

Créez le repository ambari dans yum :

```
[root@worker4 ~]# vi /etc/yum.repos.d/ambari.repo
[root@worker4 ~]# 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@worker4 ~]# yum clean all
Loaded plugins: fastestmirror
Cleaning repos: ambari base extras updates
Cleaning up list of fastest mirrors

[root@worker4 ~]# yum makecache
Loaded plugins: fastestmirror
```

```
Determining fastest mirrors
 * base: ftp.rezopole.net
 * extras: centos.mirror.fr.planethoster.net
 * updates: centos.crazyfrogs.org
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): base/7/x86_64/primary_db
| 6.1 MB  00:00:00
(8/13): extras/7/x86_64/primary_db
| 206 kB  00:00:01
(9/13): extras/7/x86_64/other_db
| 124 kB  00:00:00
(10/13): extras/7/x86_64/filelists_db
| 217 kB  00:00:01
(11/13): updates/7/x86_64/primary_db
| 4.5 MB  00:00:00
```

```
(12/13): updates/7/x86_64/filelists_db
| 2.4 MB  00:00:00
(13/13): updates/7/x86_64/other_db
| 318 kB  00:00:00
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
...
```

Modifiez le fichier /etc/hosts de la VM **master1** et vérifiez le contenu du fichier :

```
[root@worker4 ~]# ssh -l root 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.
ECDSA key fingerprint is MD5:03:f0:db:ae:0c:0a:5e:47:9b:7e:8c:5b:87:c1:0e:6f.
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.
root@192.168.56.2's password: fenestros
Last login: Tue Sep 15 22:15:44 2020

[root@master1 ~]# echo "192.168.56.8   worker4.ittraining.loc  worker4" >> /etc/hosts
[root@master1 ~]# cat /etc/hosts
127.0.0.1   localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
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
192.168.56.8   worker4.ittraining.loc  worker4

[root@master1 ~]# exit
logout
Connection to 192.168.56.2 closed.
```

Modifiez le fichier /etc/hosts de la VM **master2** :

```
[root@worker4 ~]# ssh -l root 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.
ECDSA key fingerprint is MD5:03:f0:db:ae:0c:0a:5e:47:9b:7e:8c:5b:87:c1:0e:6f.
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.
root@192.168.56.3's password: fenestros
Last login: Tue Sep 15 22:17:53 2020

[root@master2 ~]# echo "192.168.56.8   worker4.ittraining.loc  worker4" >> /etc/hosts
[root@master2 ~]# exit
logout
Connection to 192.168.56.3 closed.
```

Modifiez le fichier /etc/hosts des VMs **master3**, **worker1**, **worker2** et **worker3** :

```
[root@worker4 ~]# ssh -l root 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.
ECDSA key fingerprint is MD5:03:f0:db:ae:0c:0a:5e:47:9b:7e:8c:5b:87:c1:0e:6f.
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.
root@192.168.56.4's password: fenestros
Last login: Tue Sep 15 22:17:11 2020
[root@master3 ~]# echo "192.168.56.8   worker4.ittraining.loc  worker4" >> /etc/hosts
[root@master3 ~]# exit
logout
Connection to 192.168.56.4 closed.
[root@worker4 ~]# ssh -l root 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.
ECDSA key fingerprint is MD5:03:f0:db:ae:0c:0a:5e:47:9b:7e:8c:5b:87:c1:0e:6f.
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.
root@192.168.56.5's password: fenestros
Last login: Tue Sep 15 22:18:22 2020
[root@worker1 ~]# echo "192.168.56.8   worker4.ittraining.loc  worker4" >> /etc/hosts
[root@worker1 ~]# exit
logout
Connection to 192.168.56.5 closed.
[root@worker4 ~]# ssh -l root 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.
ECDSA key fingerprint is MD5:03:f0:db:ae:0c:0a:5e:47:9b:7e:8c:5b:87:c1:0e:6f.
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.
root@192.168.56.6's password: fenestros
Last login: Tue Sep 15 22:18:45 2020
[root@worker2 ~]# echo "192.168.56.8   worker4.ittraining.loc  worker4" >> /etc/hosts
[root@worker2 ~]# exit
logout
Connection to 192.168.56.6 closed.
[root@worker4 ~]# ssh -l root 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.
```

```
ECDSA key fingerprint is MD5:03:f0:db:ae:0c:0a:5e:47:9b:7e:8c:5b:87:c1:0e:6f.
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.
root@192.168.56.7's password: fenestros
Last login: Tue Sep 15 22:19:13 2020
[root@worker3 ~]# echo "192.168.56.8   worker4.ittraining.loc  worker4" >> /etc/hosts
[root@worker3 ~]# exit
logout
Connection to 192.168.56.7 closed.
```

Arrêtez la VM CentOS_7_8 :

```
[root@worker4 ~]# shutdown -h now
Connection to 192.168.56.8 closed by remote host.
Connection to 192.168.56.8 closed.
```

LAB #3 - Ajouter l'hôte worker4 au Cluster

Démarrez la VM **CentOS_7_8** :

```
desktop@serverXX:~$ VBoxManage startvm CentOS_7_8 --type headless
Waiting for VM "CentOS_7_8" to power on...
VM "CentOS_7_8" has been successfully started.
```

Connectez-vous à la VM en utilisant l'adresse 192.168.56.8 :

```
desktop@serverXX:~$ ssh -l trainee 192.168.56.8
trainee@192.168.56.8's password:
Last login: Thu Sep 17 11:12:31 2020 from 192.168.56.1
```

Vérifiez que le service ambari-client est en cours d'exécution :

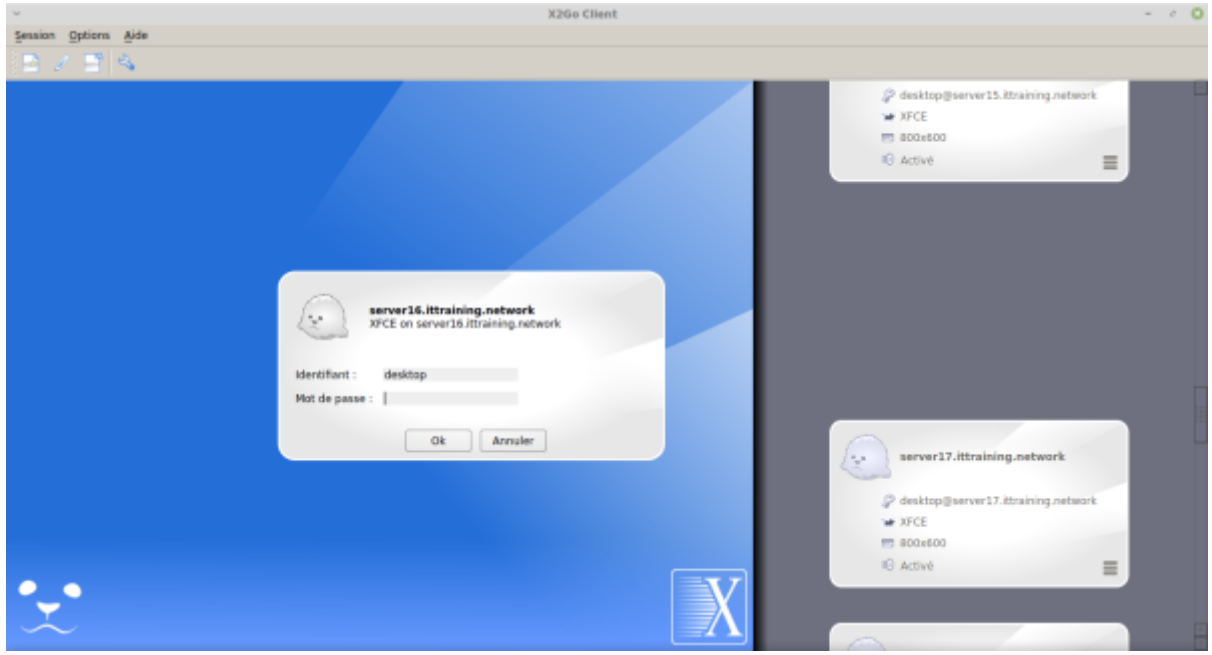
```
[trainee@worker4 ~]$ su -
Password: fenestros
Last login: Thu Sep 17 11:12:36 CEST 2020 on pts/0
[root@worker4 ~]# systemctl status ambari-agent
● ambari-agent.service - LSB: ambari-agent daemon
   Loaded: loaded (/etc/rc.d/init.d/ambari-agent; bad; vendor preset: disabled)
   Active: active (running) since Thu 2020-09-17 11:20:34 CEST; 1min 26s ago
     Docs: man:systemd-sysv-generator(8)
  Process: 873 ExecStart=/etc/rc.d/init.d/ambari-agent start (code=exited, status=0/SUCCESS)
   CGroup: /system.slice/ambari-agent.service
           ├─1168 /usr/bin/python /usr/lib/ambari-agent/lib/ambari_agent/AmbariAgent.py start
           └─1172 /usr/bin/python /usr/lib/ambari-agent/lib/ambari_agent/main.py start

Sep 17 11:20:32 worker4.ittraining.loc ambari-agent[873]: Checking ambari-common dir...
Sep 17 11:20:32 worker4.ittraining.loc ambari-agent[873]: Starting ambari-agent
Sep 17 11:20:34 worker4.ittraining.loc ambari-agent[873]: Verifying ambari-agent process status...
Sep 17 11:20:34 worker4.ittraining.loc ambari-agent[873]: tput: No value for $TERM and no -T specified
Sep 17 11:20:34 worker4.ittraining.loc ambari-agent[873]: Ambari Agent successfully started
Sep 17 11:20:34 worker4.ittraining.loc ambari-agent[873]: tput: No value for $TERM and no -T specified
Sep 17 11:20:34 worker4.ittraining.loc ambari-agent[873]: Agent PID at: /run/ambari-agent/ambari-agent.pid
Sep 17 11:20:34 worker4.ittraining.loc ambari-agent[873]: Agent out at: /var/log/ambari-agent/ambari-agent.out
Sep 17 11:20:34 worker4.ittraining.loc ambari-agent[873]: Agent log at: /var/log/ambari-agent/ambari-agent.log
Sep 17 11:20:34 worker4.ittraining.loc systemd[1]: Started LSB: ambari-agent daemon.
```

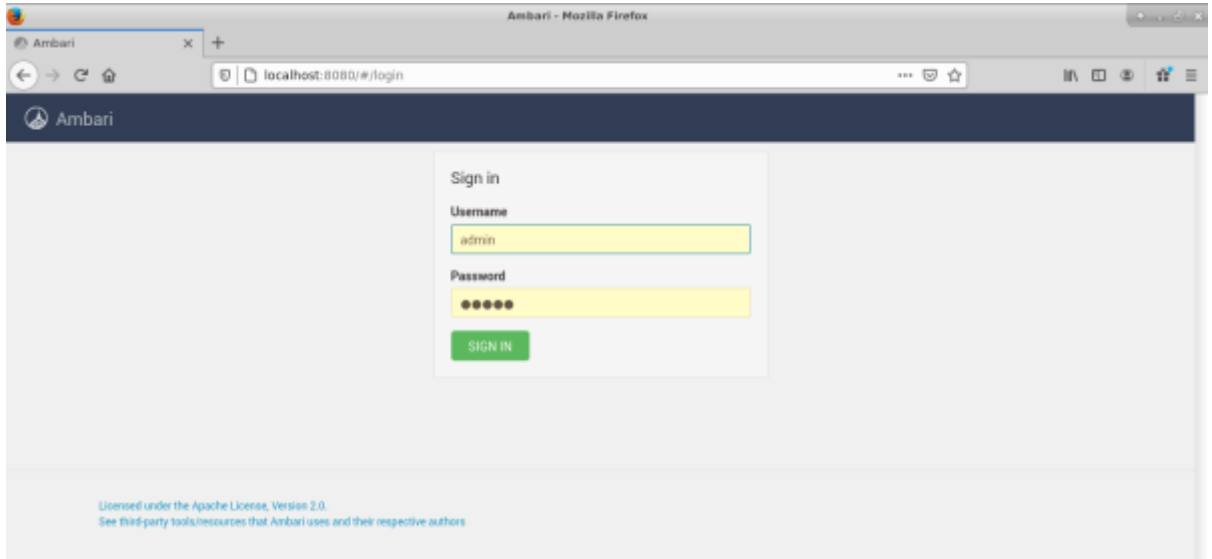
LAB #3 - Ajouter l'hôte worker4 au Cluster

3.1 - Accéder à la Console d'Ambari

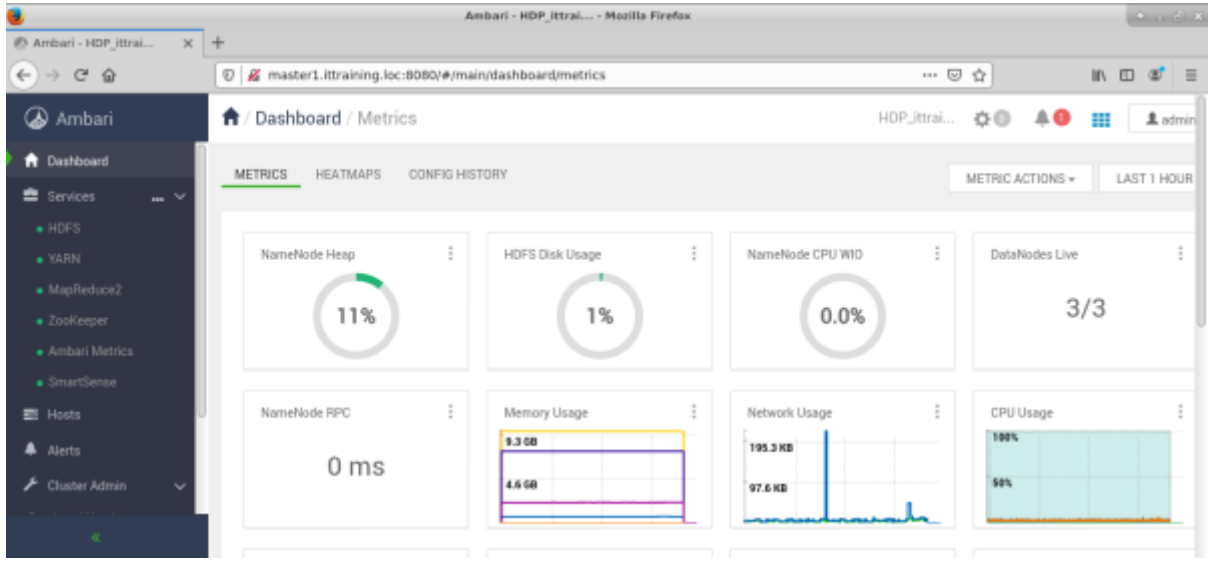
Connectez-vous au serverXX en utilisant le client **X2Go** :



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** :

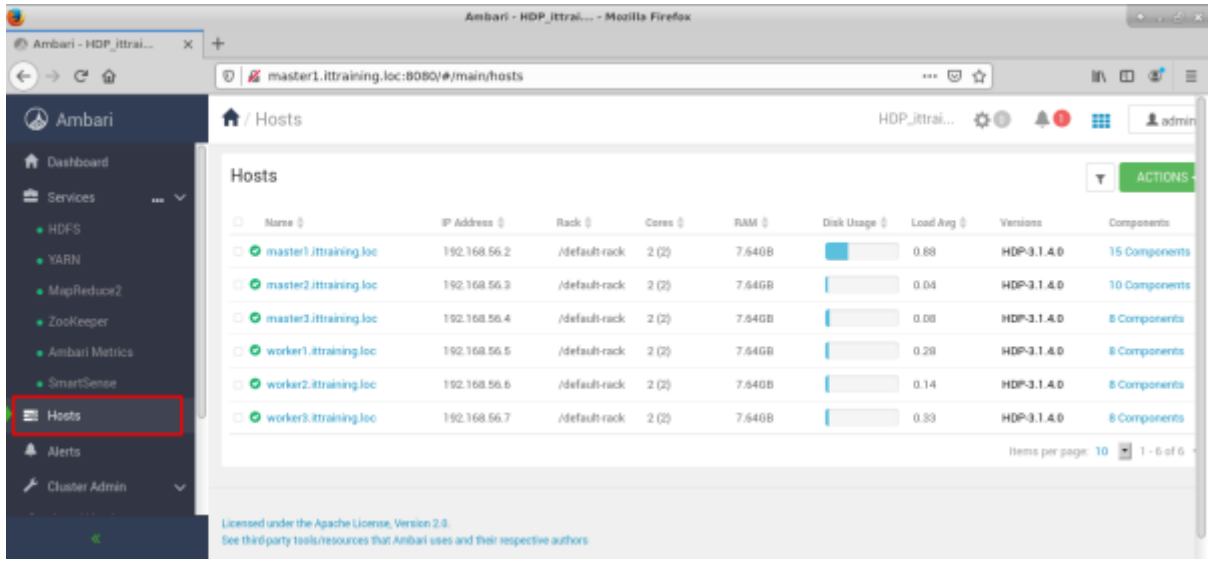


Vous êtes maintenant dans la console d'Ambari :

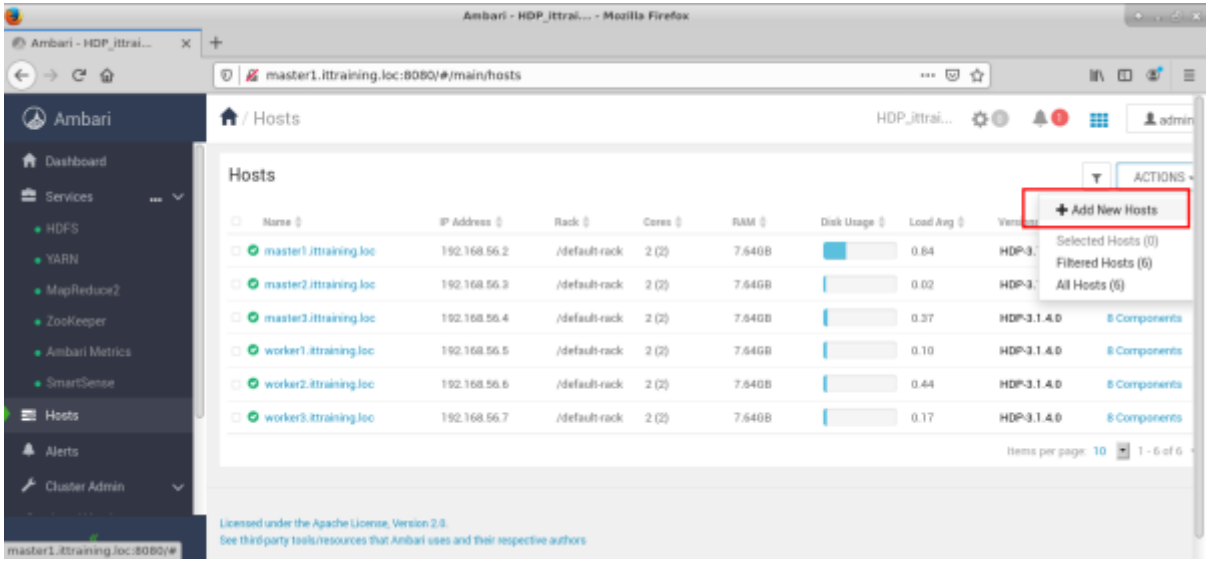


3.2 - Ajouter l'hôte worker4

Cliquez sur le lien **Hosts** :

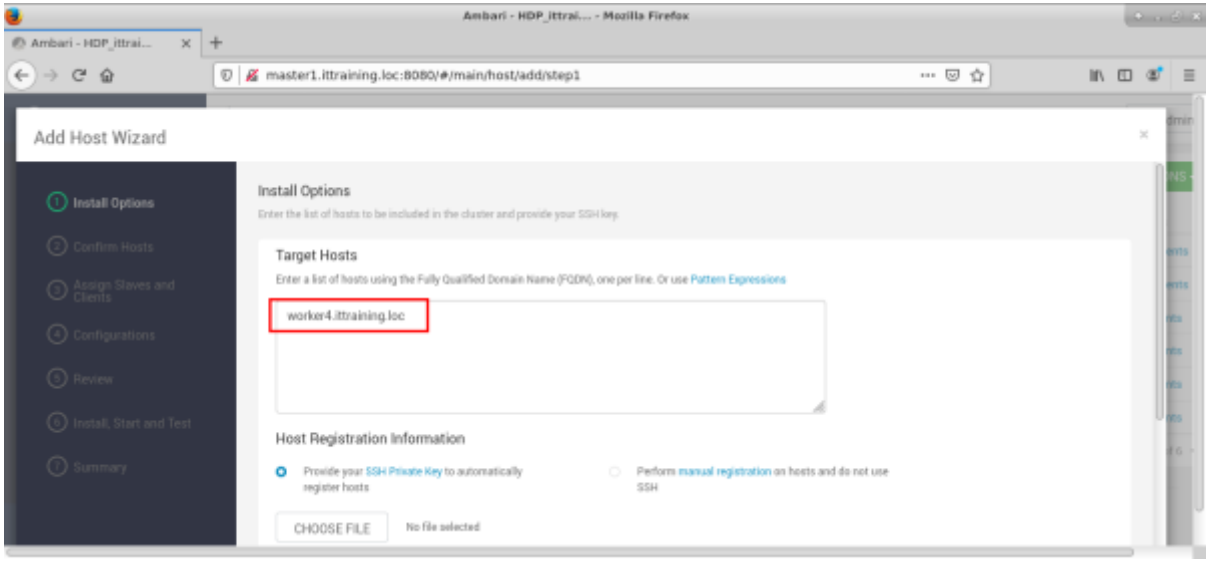


Cliquez sur le bouton **Actions** puis le lien **Add New Hosts** :

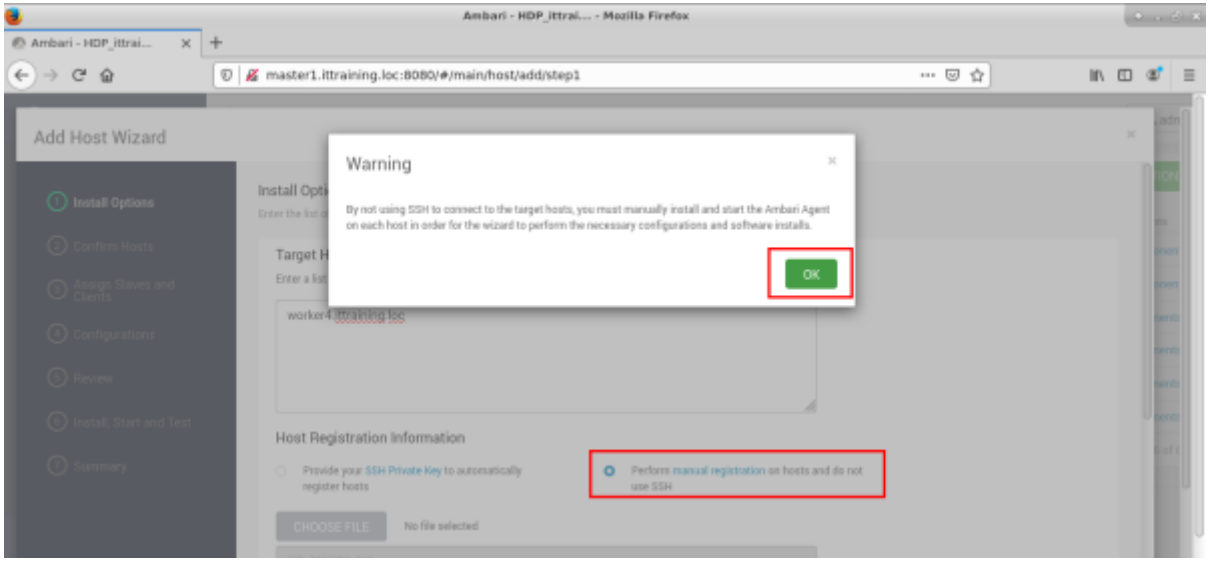


Install Options

Entrez le nom de worker4.ittraining.loc dans l'emplacement prévu :

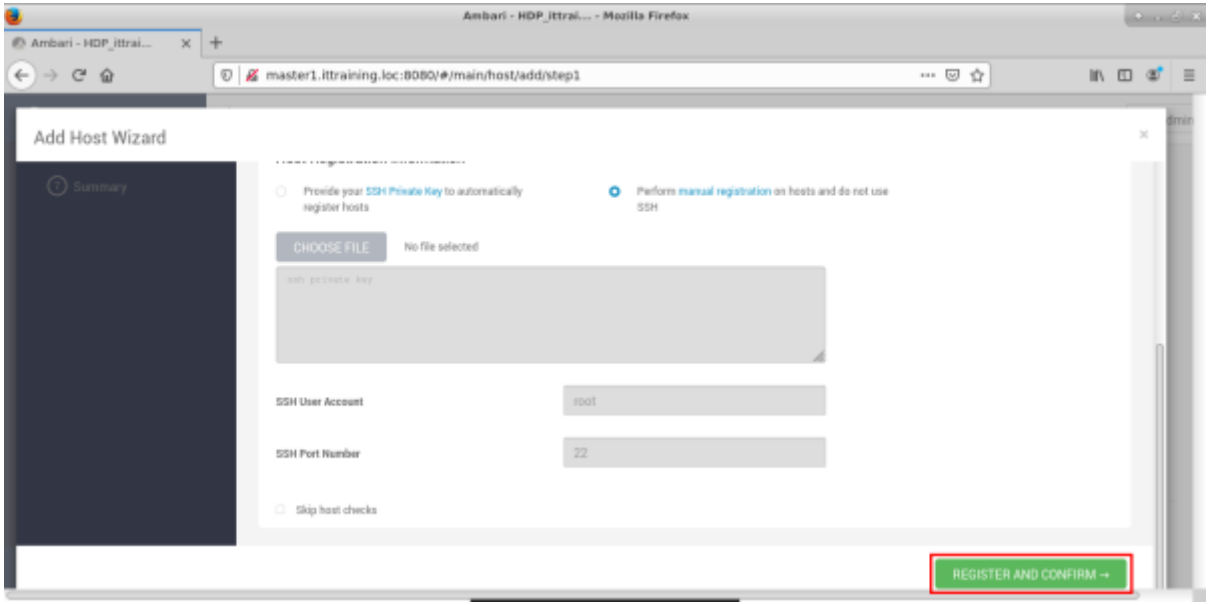


Choisissez l'option **Perform manual registration and do not use SSH** puis cliquez sur le bouton **OK** pour valider la boîte d'avertissement :

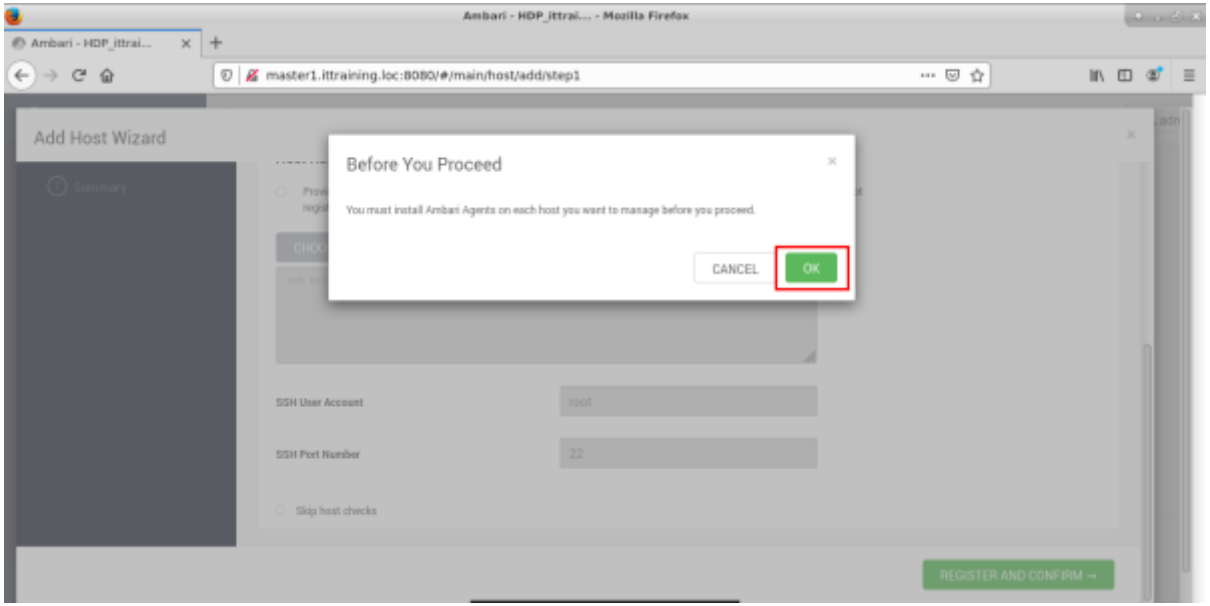


Confirm Hosts

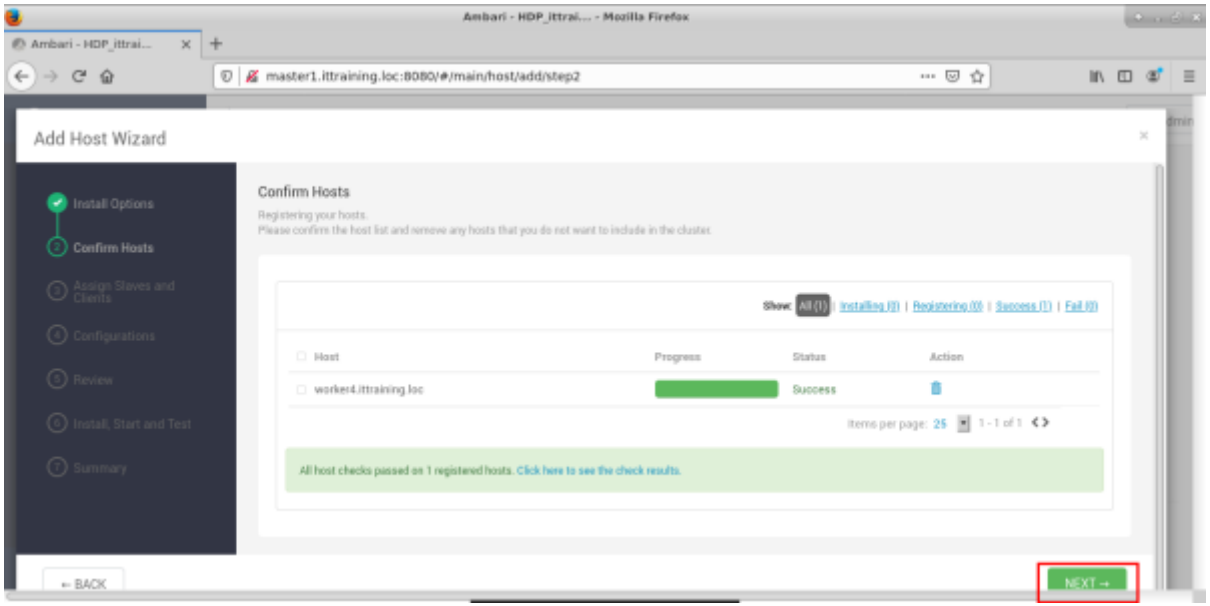
Cliquez sur le bouton **REGISTER AND CONFIRM** :



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

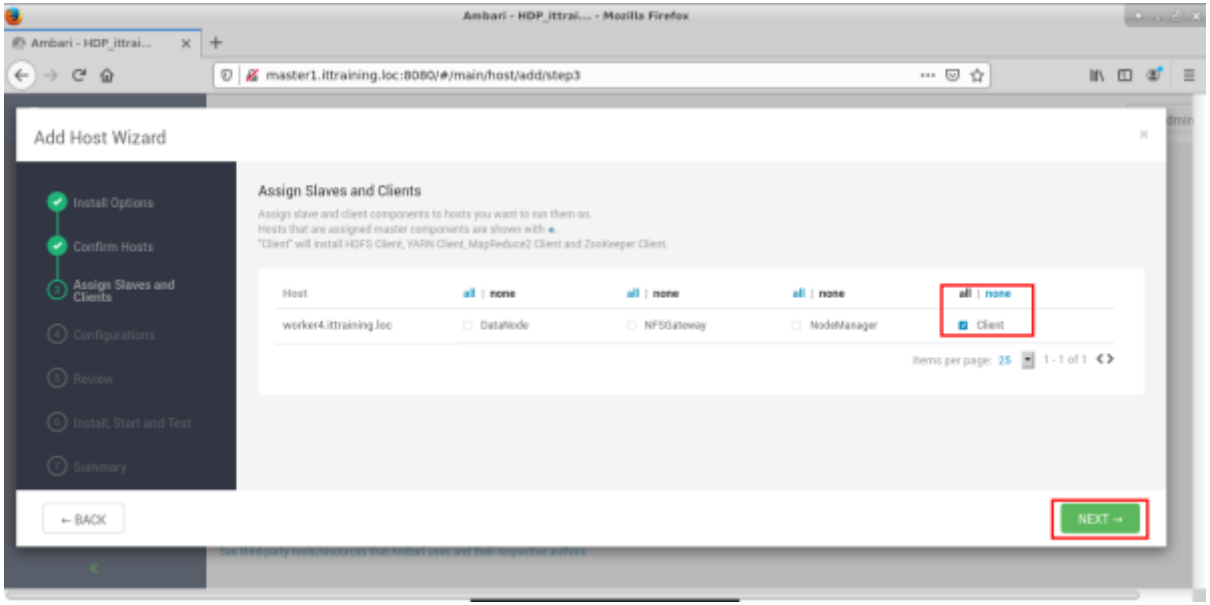


L'assistant initialise le nœud puis vérifie que les pré-requis pour continuer sont satisfaits. Cliquez sur le bouton **NEXT** :



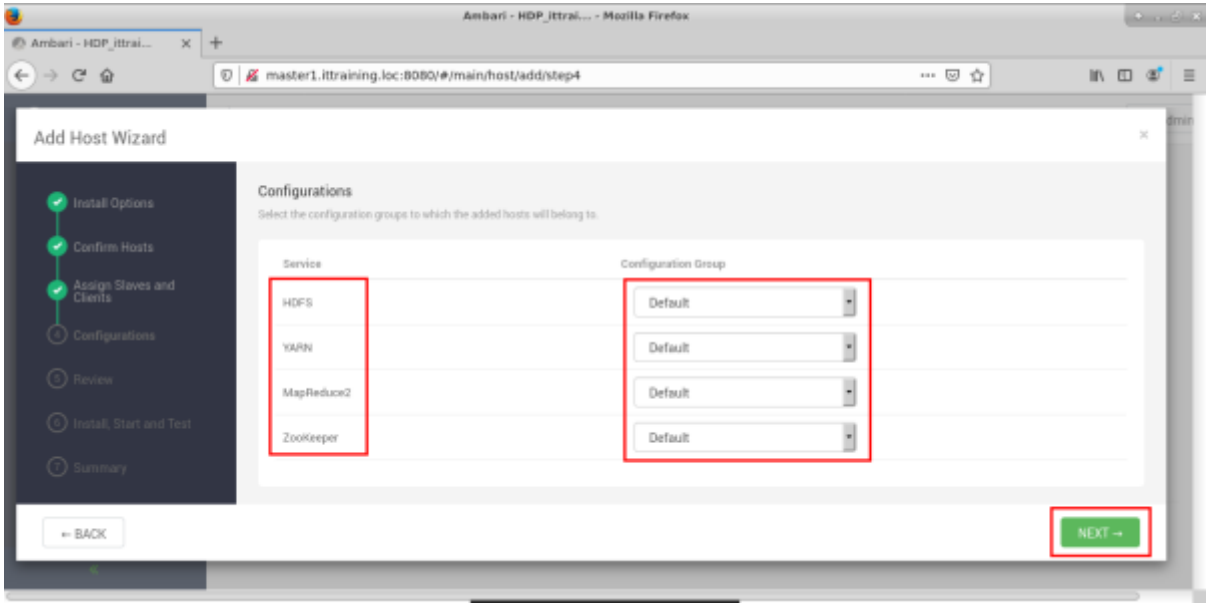
Assign Slaves and Clients

L'assistant vous propose maintenant d'assigner des composants à l'hôte. Cochez **Client** pour l'hôte puis cliquez sur le bouton **NEXT** :



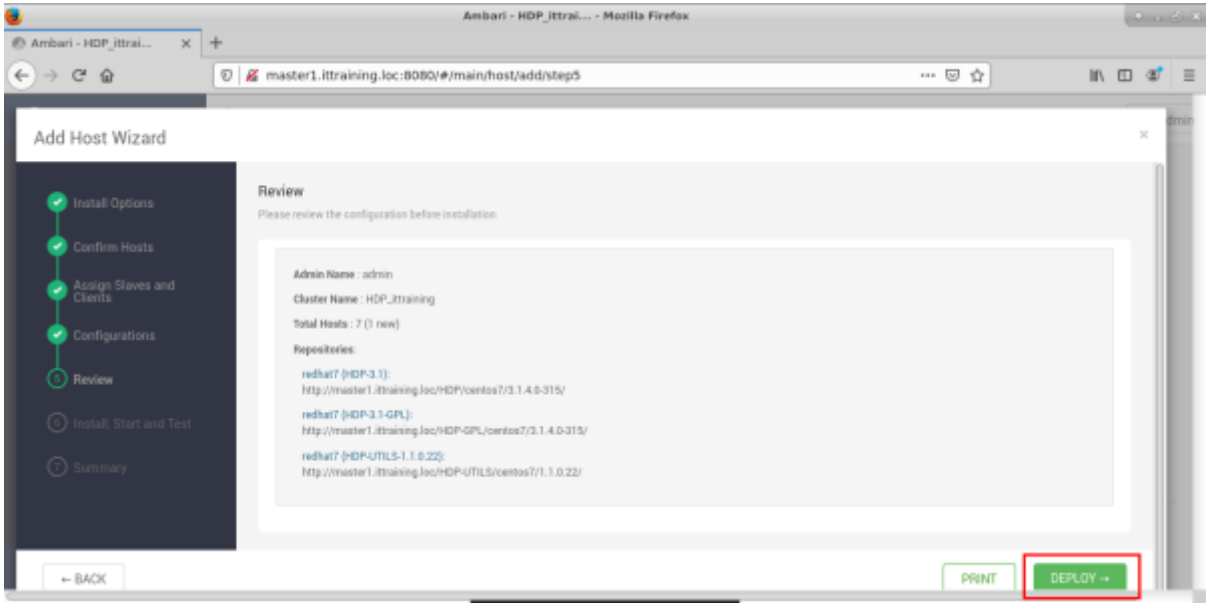
Configurations

L'assistant vous demande de sélectionner les groupes de configurations auquels l'hôte va être rattaché. Cliquez simplement sur le bouton **NEXT** :



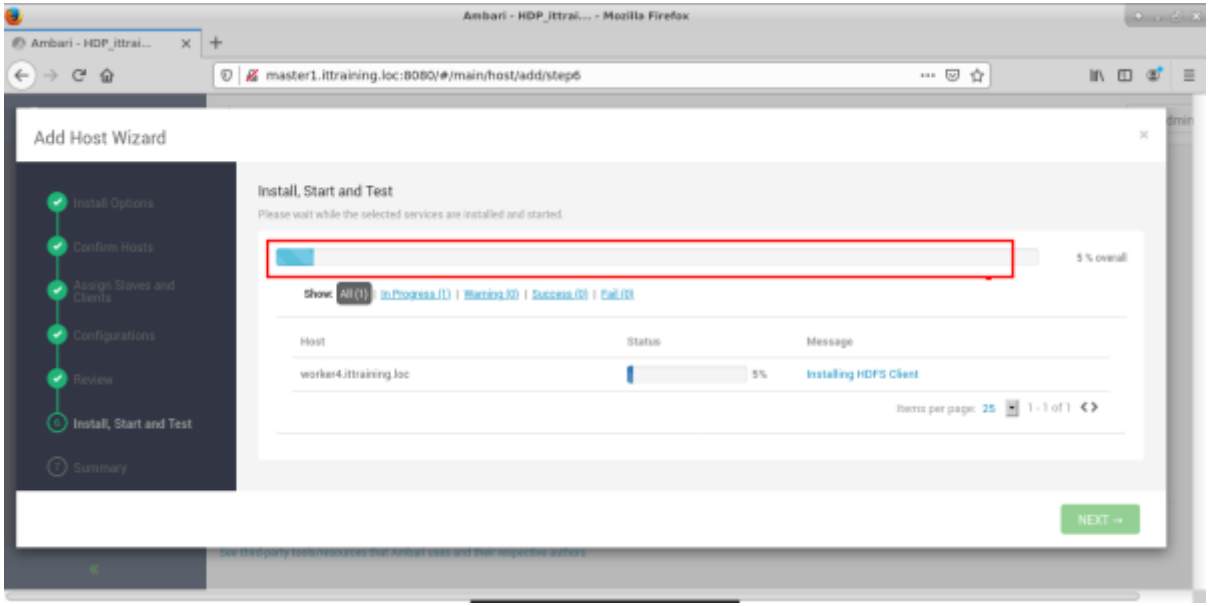
Review

L’assistant vous propose maintenant un résumé de vos choix. Cliquez sur le bouton **DEPLOY** :

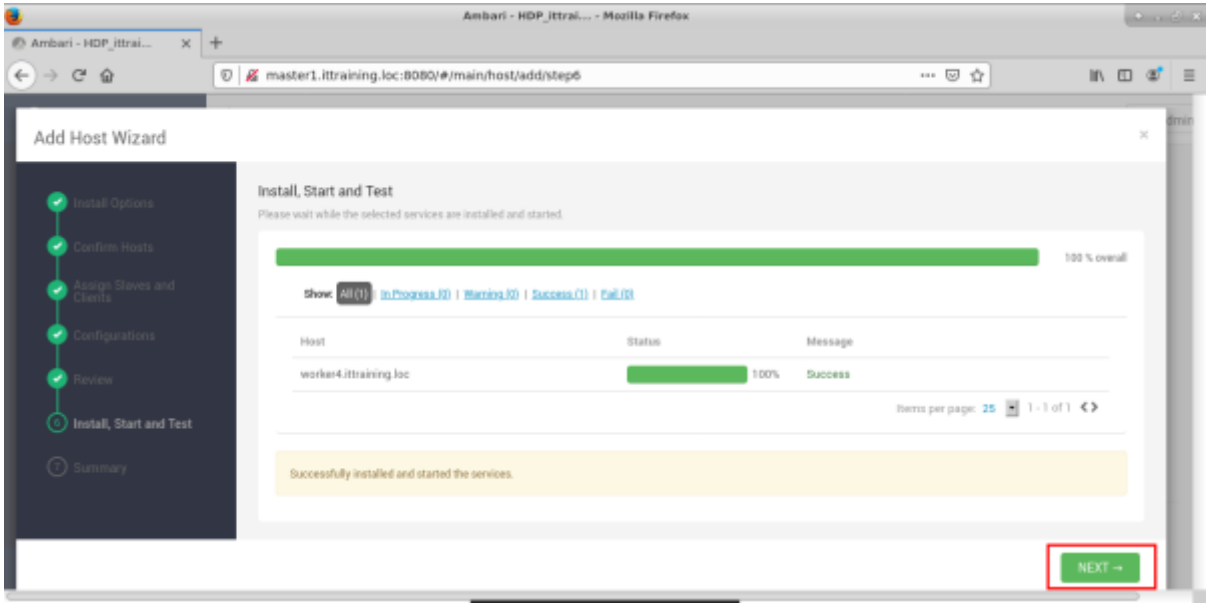


Install, Start and Test

Le déploiement peut prendre jusqu'à 10 minutes :

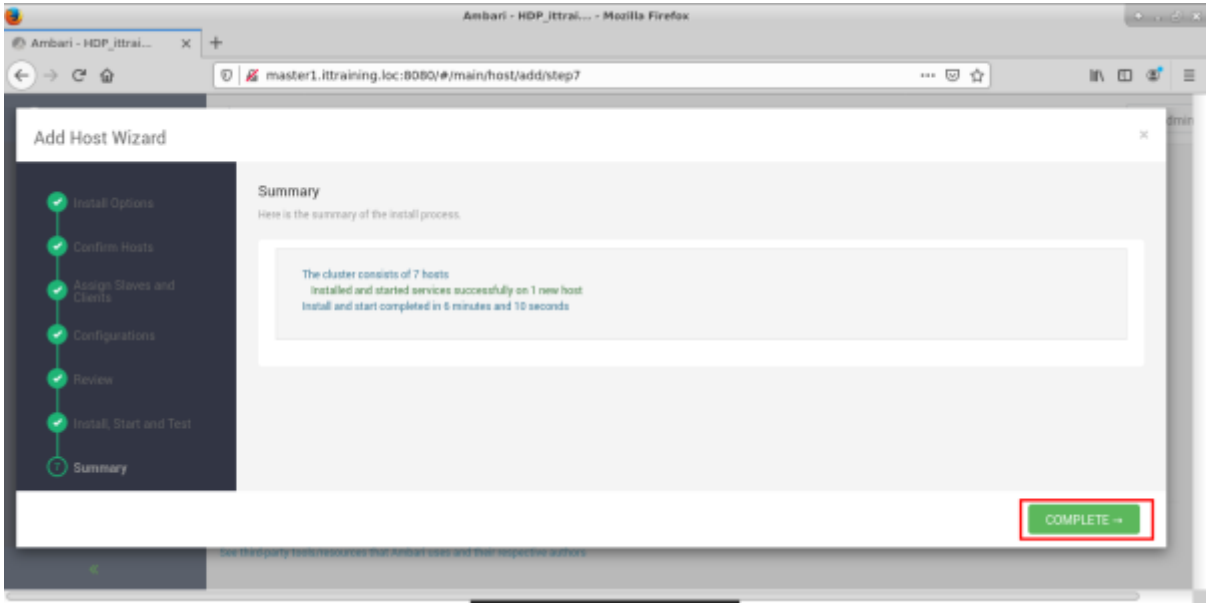


A l'issu du déploiement, un résumé de la situation vous informe d'éventuelles erreurs. Dans le cas où il n'y ait pas d'erreurs, cliquez sur le bouton **NEXT** :

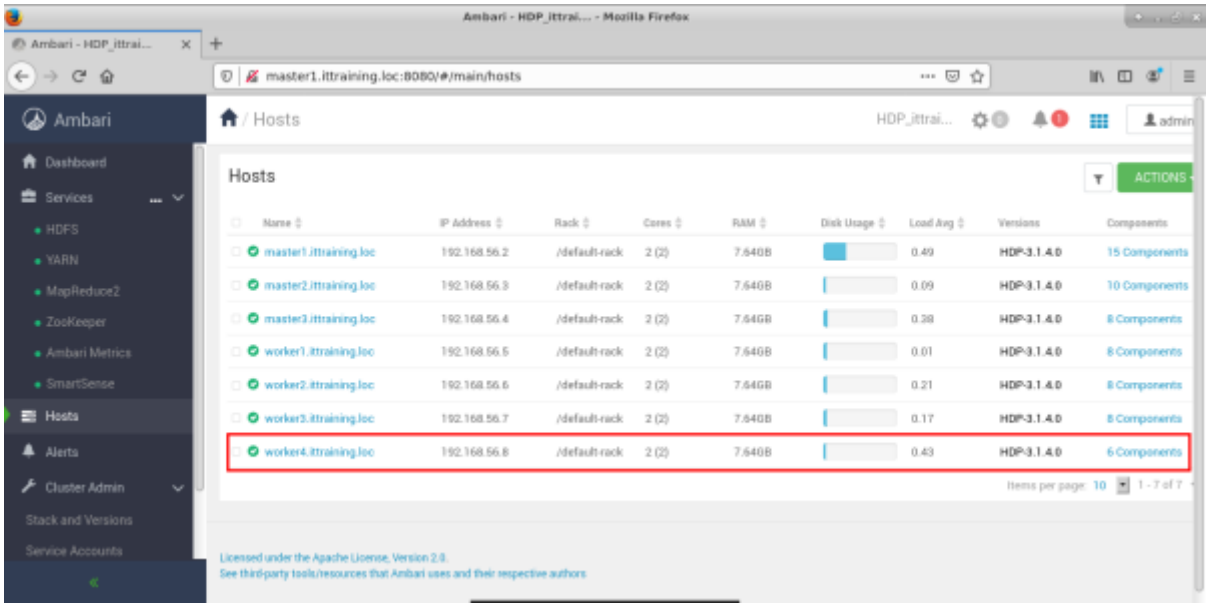


Summary

L’assistant vous propose maintenant un sommaire. Cliquez sur le bouton **COMPLETE** :



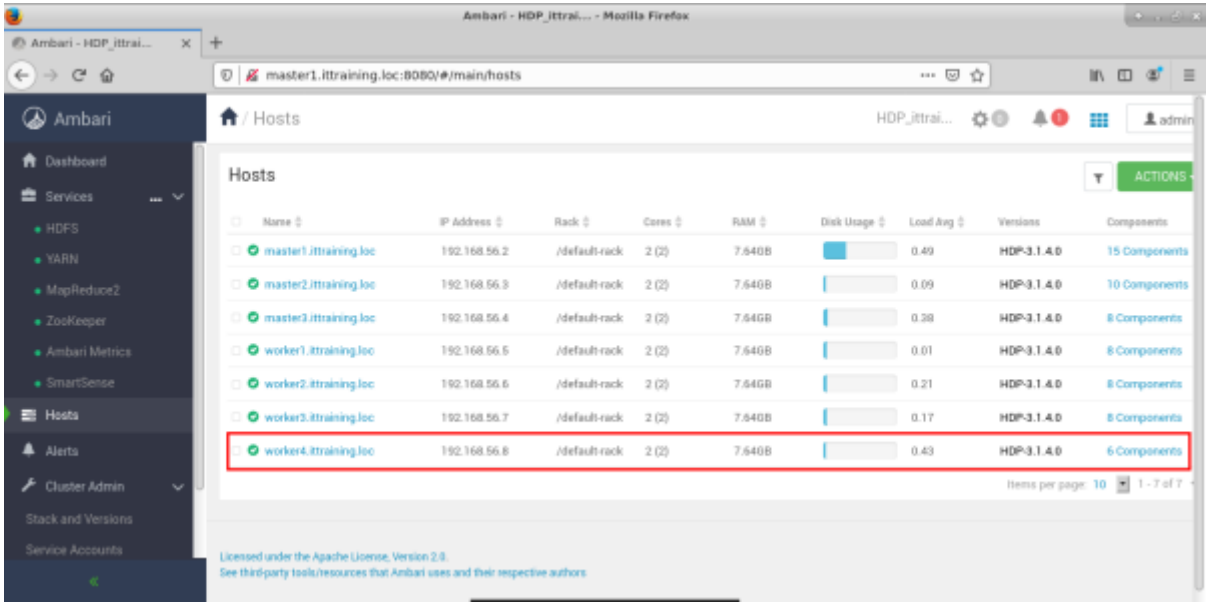
Vous arrivez sur la liste des hôtes dans la console de gestion :



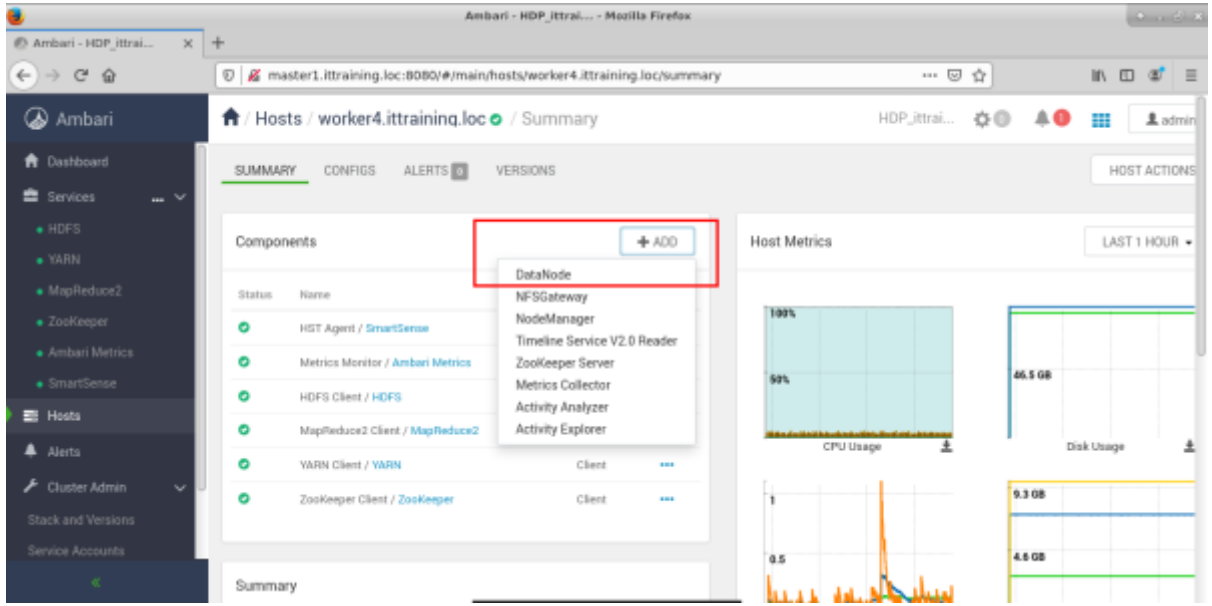
LAB #4 - Ajouter les Services DataNode et NodeManager au worker4

4.1 - Le Service DataNode

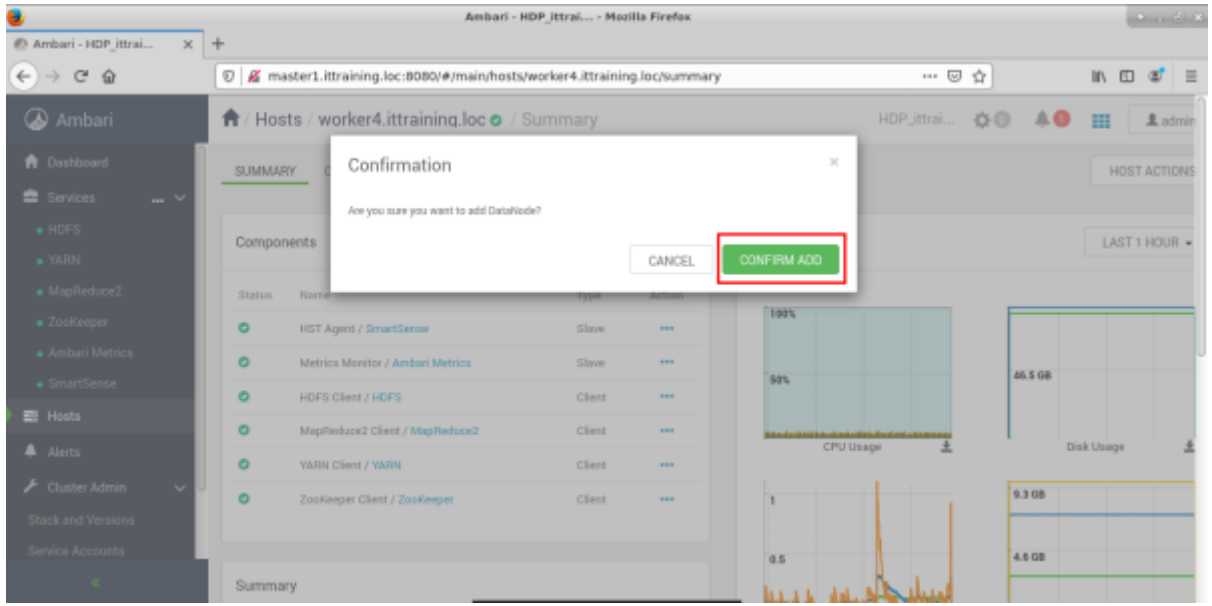
Cliquez sur le lien **worker4.ittraining.loc** :



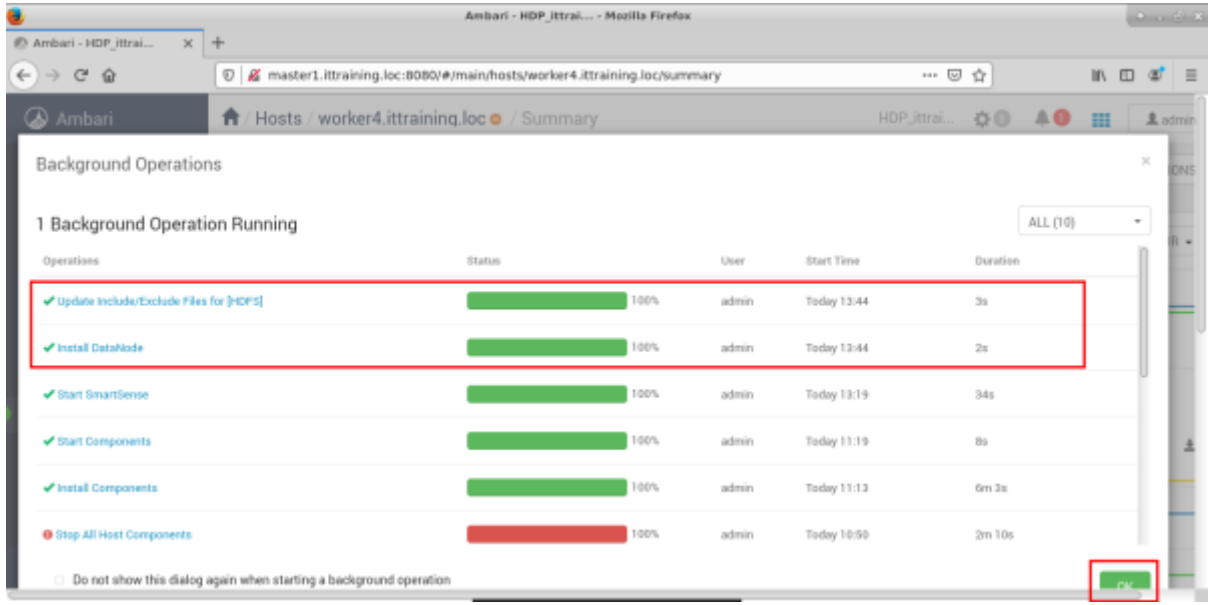
Cliquez sur le bouton **ADD** et choisissez **DataNode** dans la liste proposée :



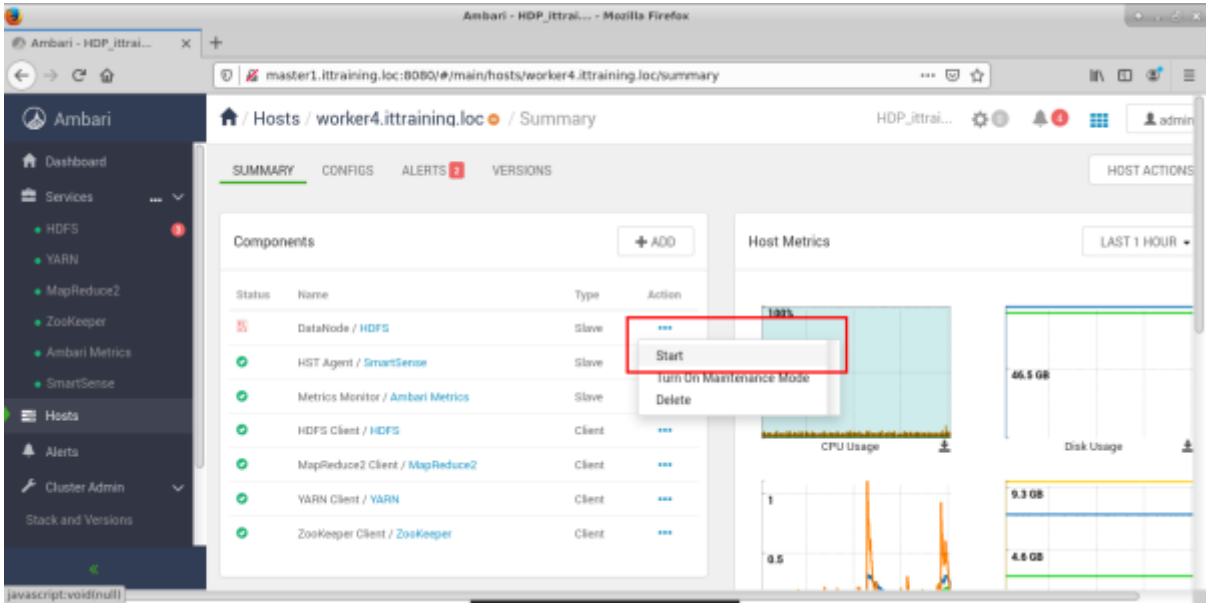
Dans la boîte de dialogue qui apparaît, cliquez sur le bouton **CONFIRM ADD** :



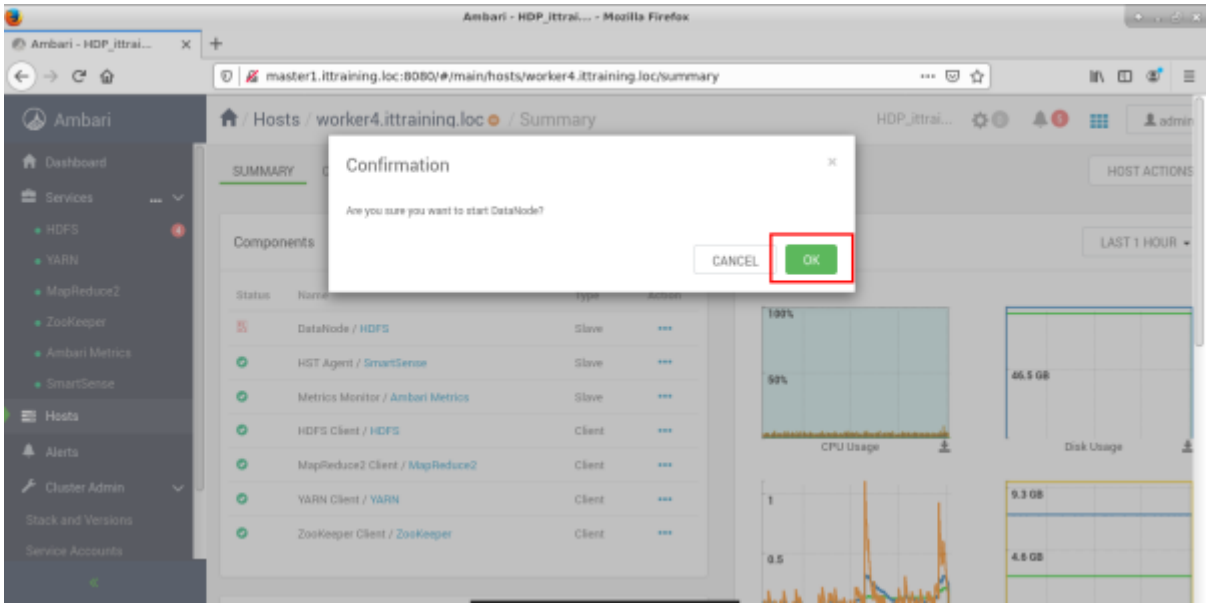
Attendez que le service ait été ajouté et cliquez sur le bouton **OK** :



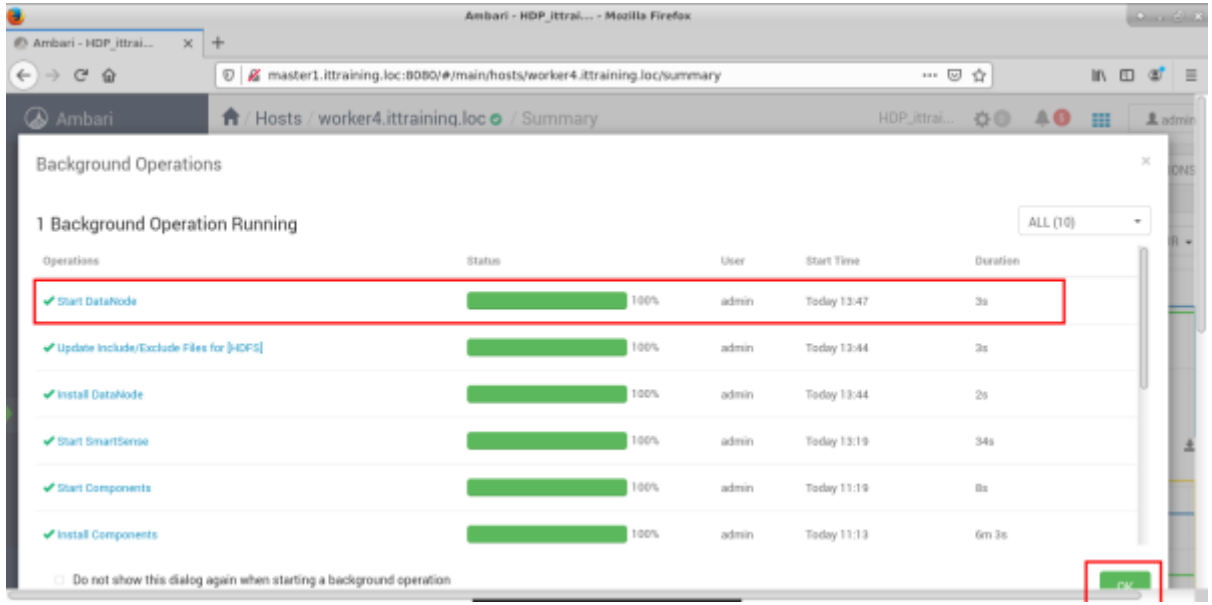
Pour démarrer le service, cliquez sur les trois points horizontaux puis sur **Start** de la ligne du service **DataNode** :



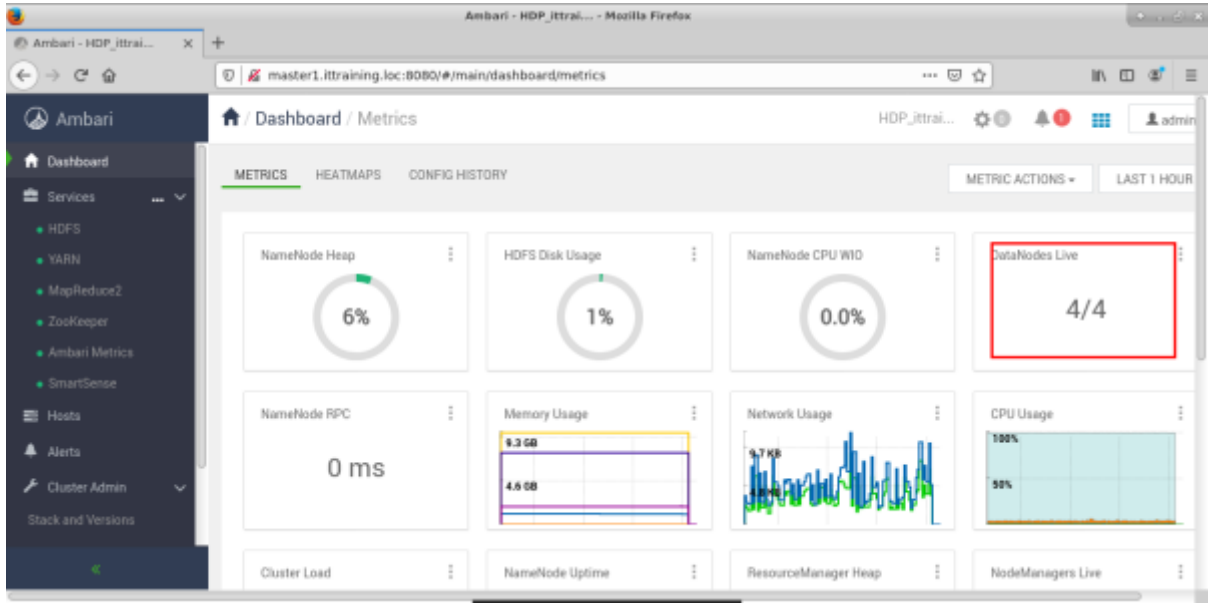
Cliquez sur le bouton **OK** dans la boîte de dialogue de confirmation :



Attendez que le service ait été démarré puis cliquez sur le bouton **OK** :

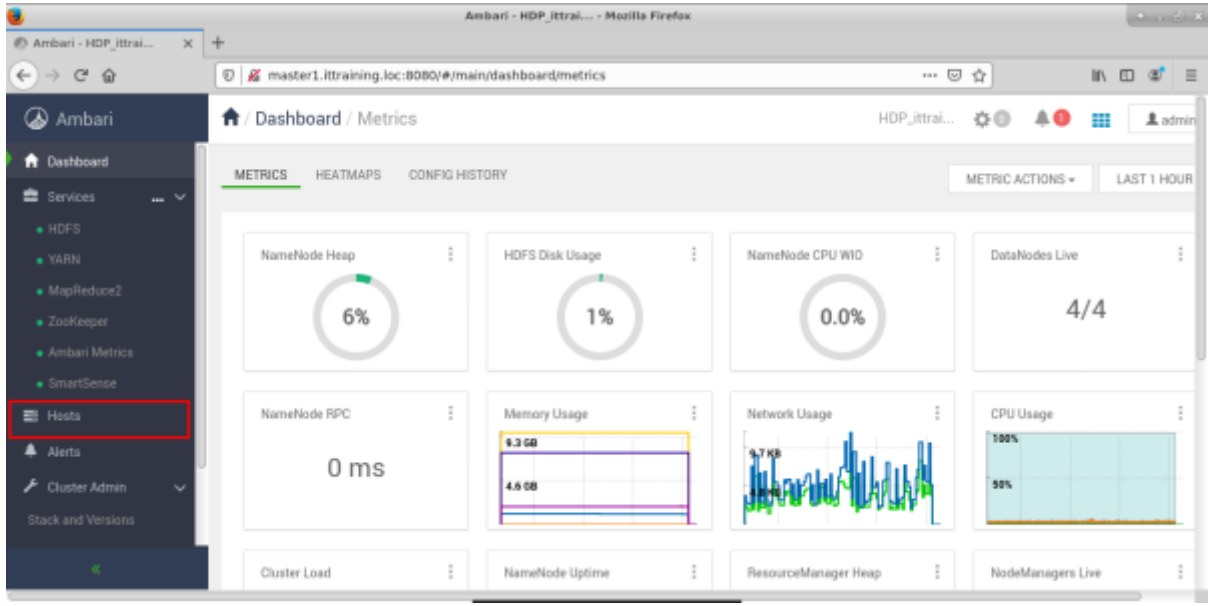


Retournez au **Dashboard** et notez que le nombre de **DataNodes Live** est passé à **4** :

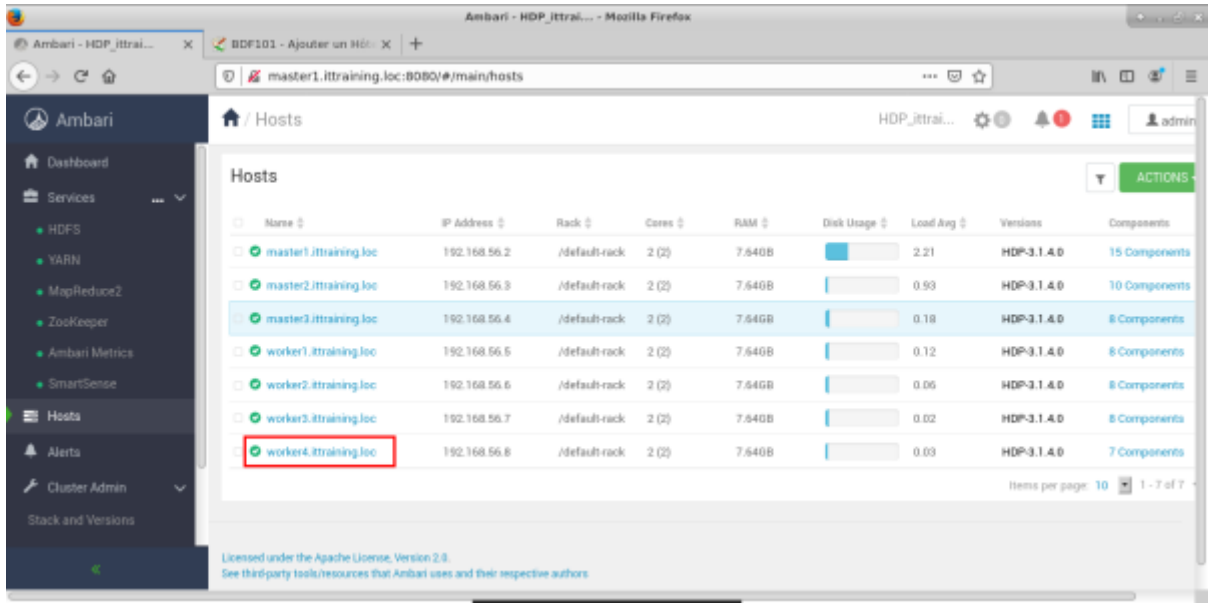


4.2 - Le Service Node Manager

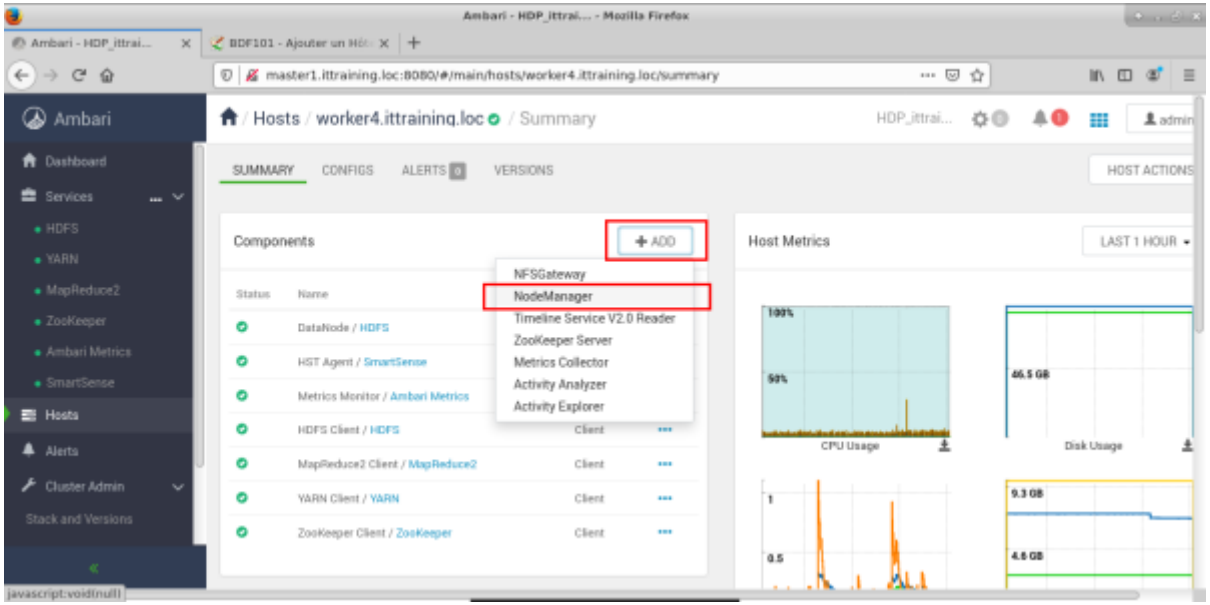
Cliquez sur le lien **Hosts** :



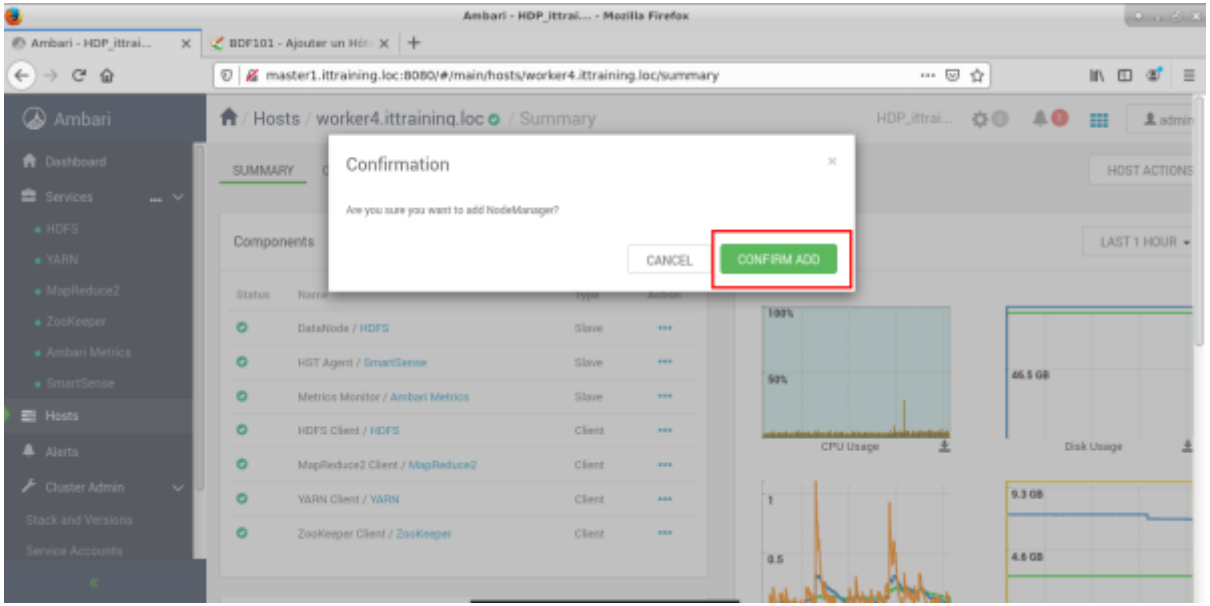
Cliquez sur le lien **worker4.ittraining.loc** :



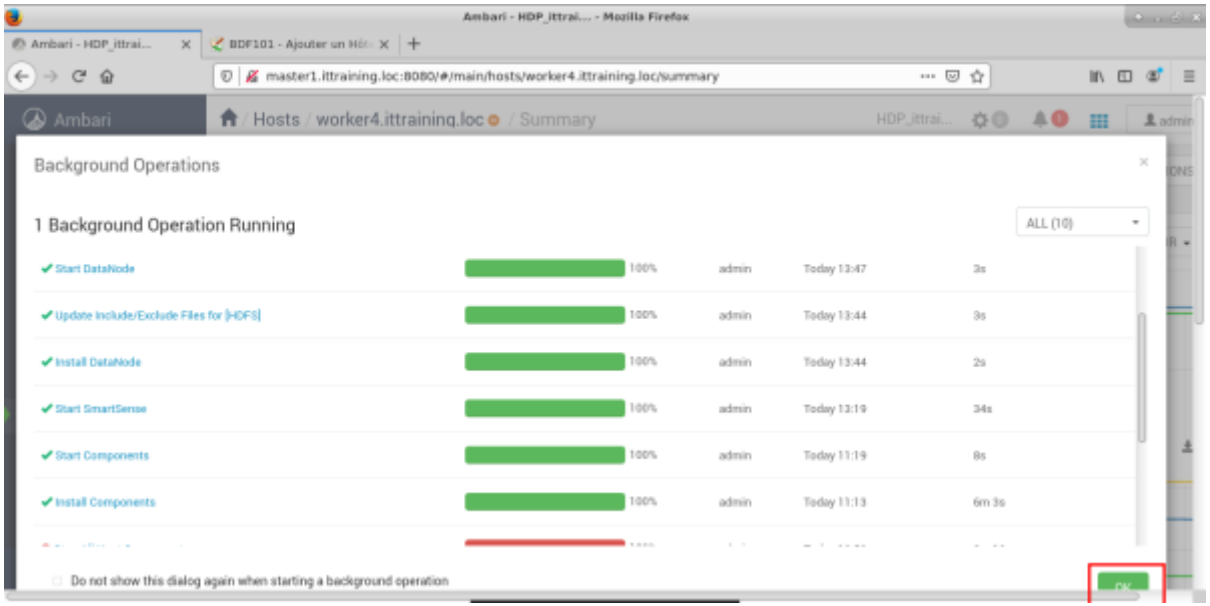
Cliquez sur le bouton **ADD** et choisissez **NodeManager** dans la liste proposée :



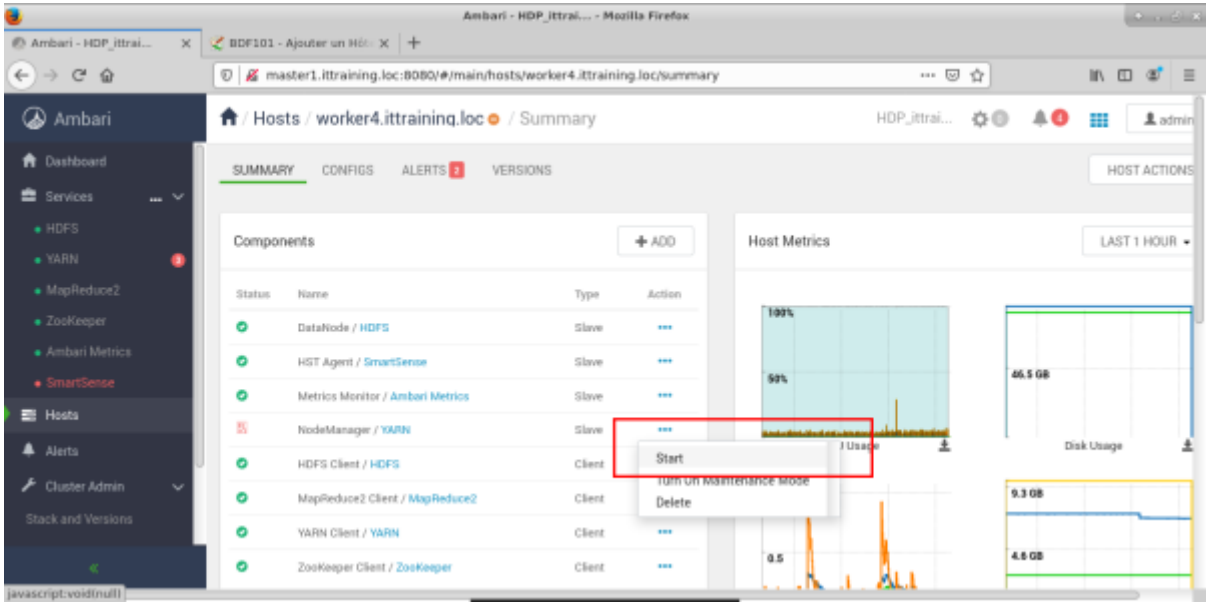
Dans la boîte de dialogue qui apparaît, cliquez sur le bouton **CONFIRM ADD** :



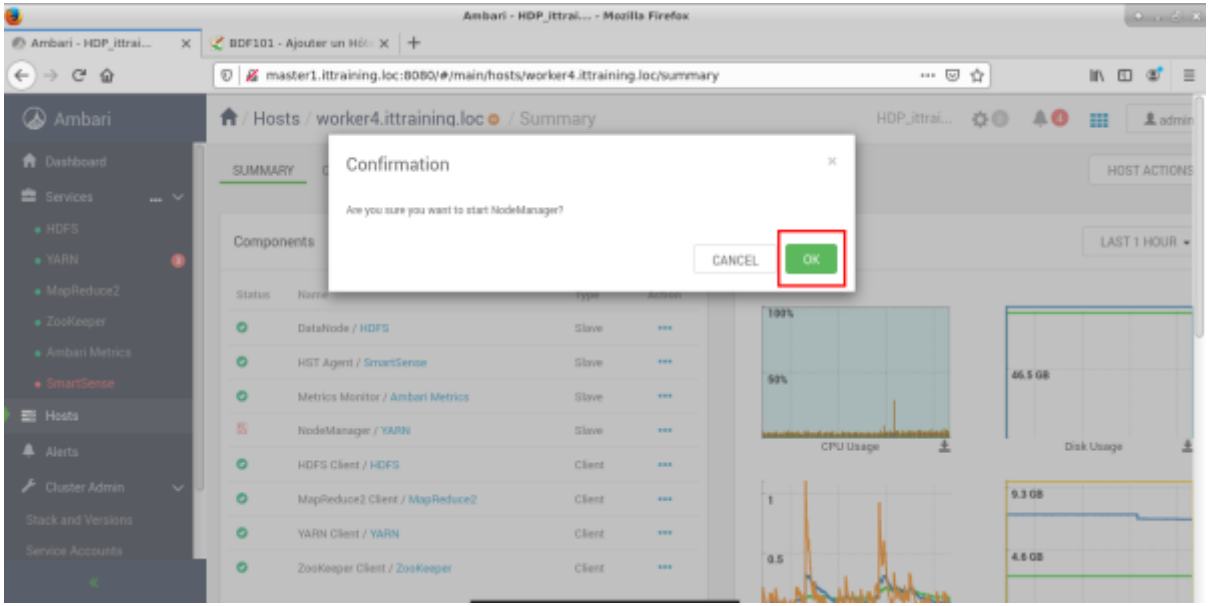
Attendez que le service ait été ajouté et cliquez sur le bouton **OK** :



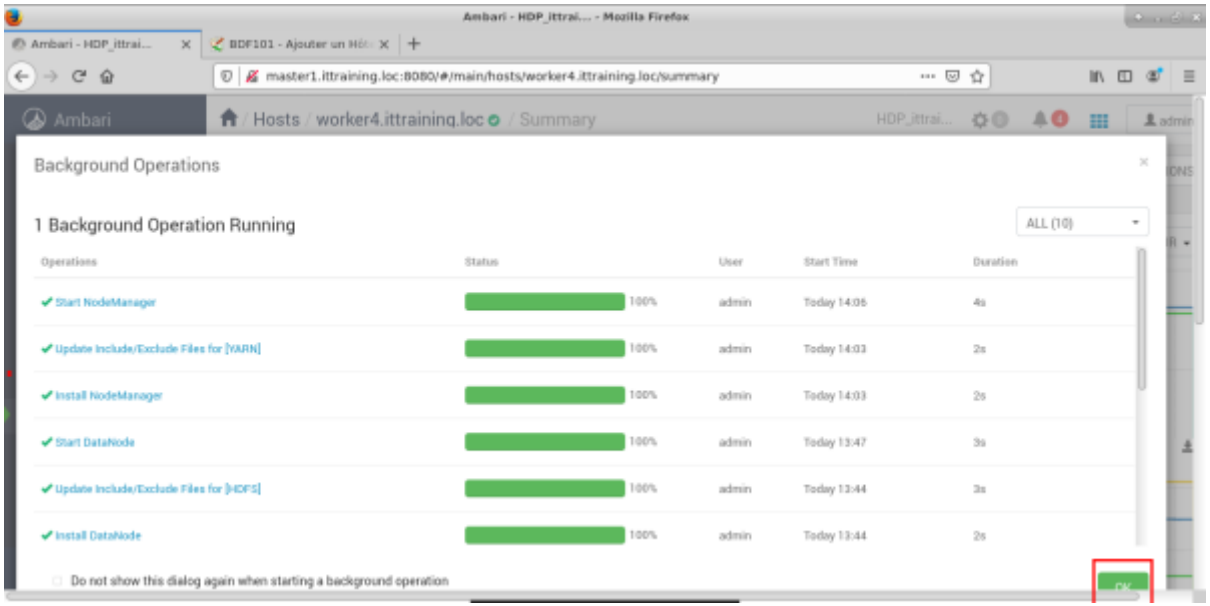
Pour démarrer le service, cliquez sur les trois points horizontaux puis sur **Start** de la ligne du service **NodeManager** :



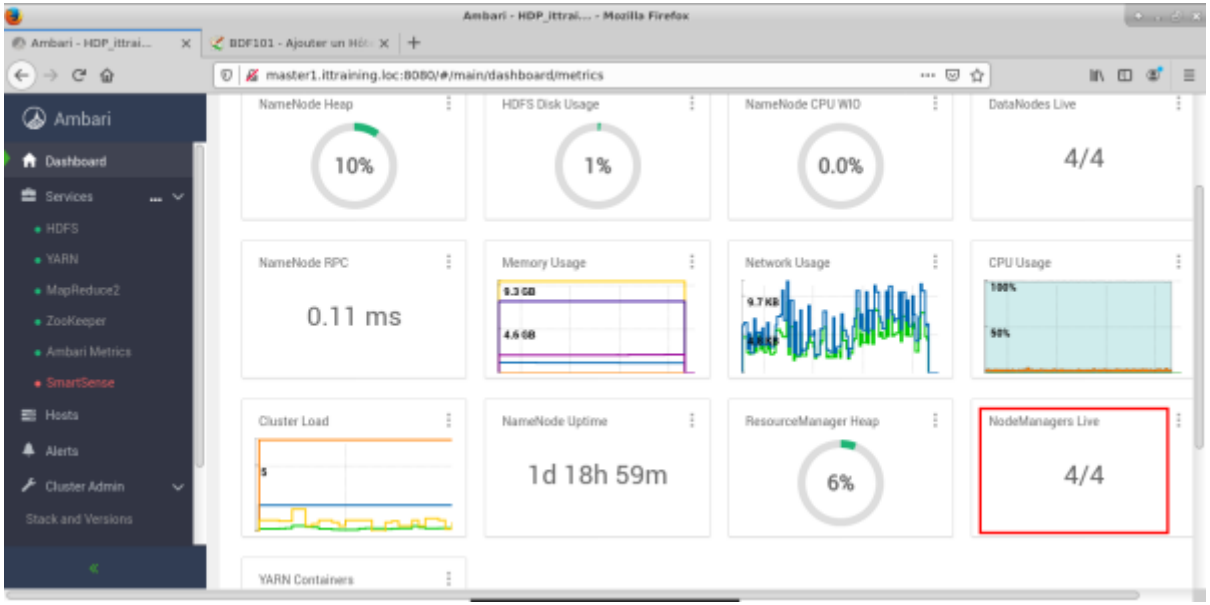
Cliquez sur le bouton **OK** dans la boîte de dialogue de confirmation :



Attendez que le service ait été démarré puis cliquez sur le bouton **OK** :



Retournez au **Dashboard** et notez que le nombre de **NodeManagers Live** est passé à **4** :



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