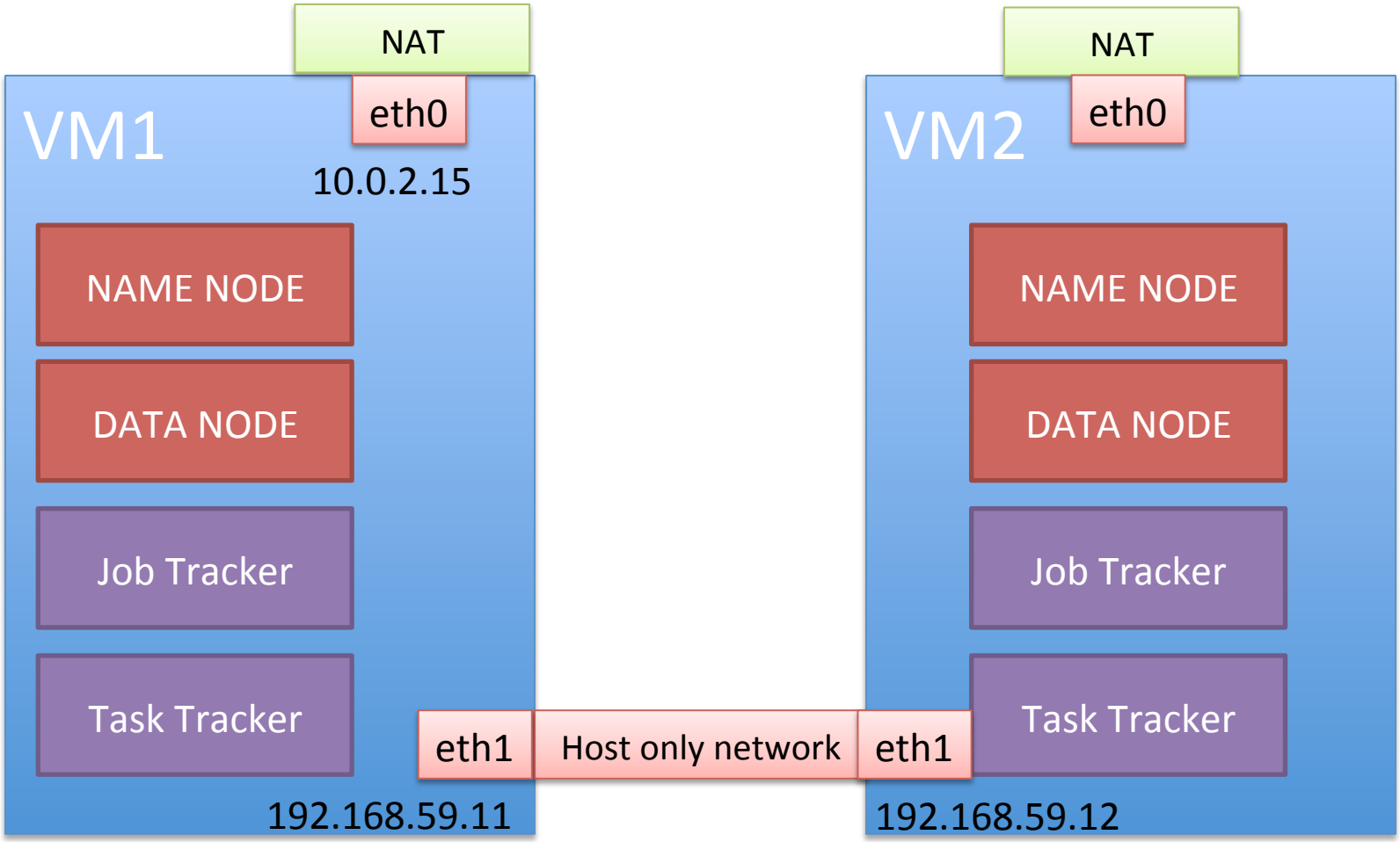
http://me2.do/G559OptJ

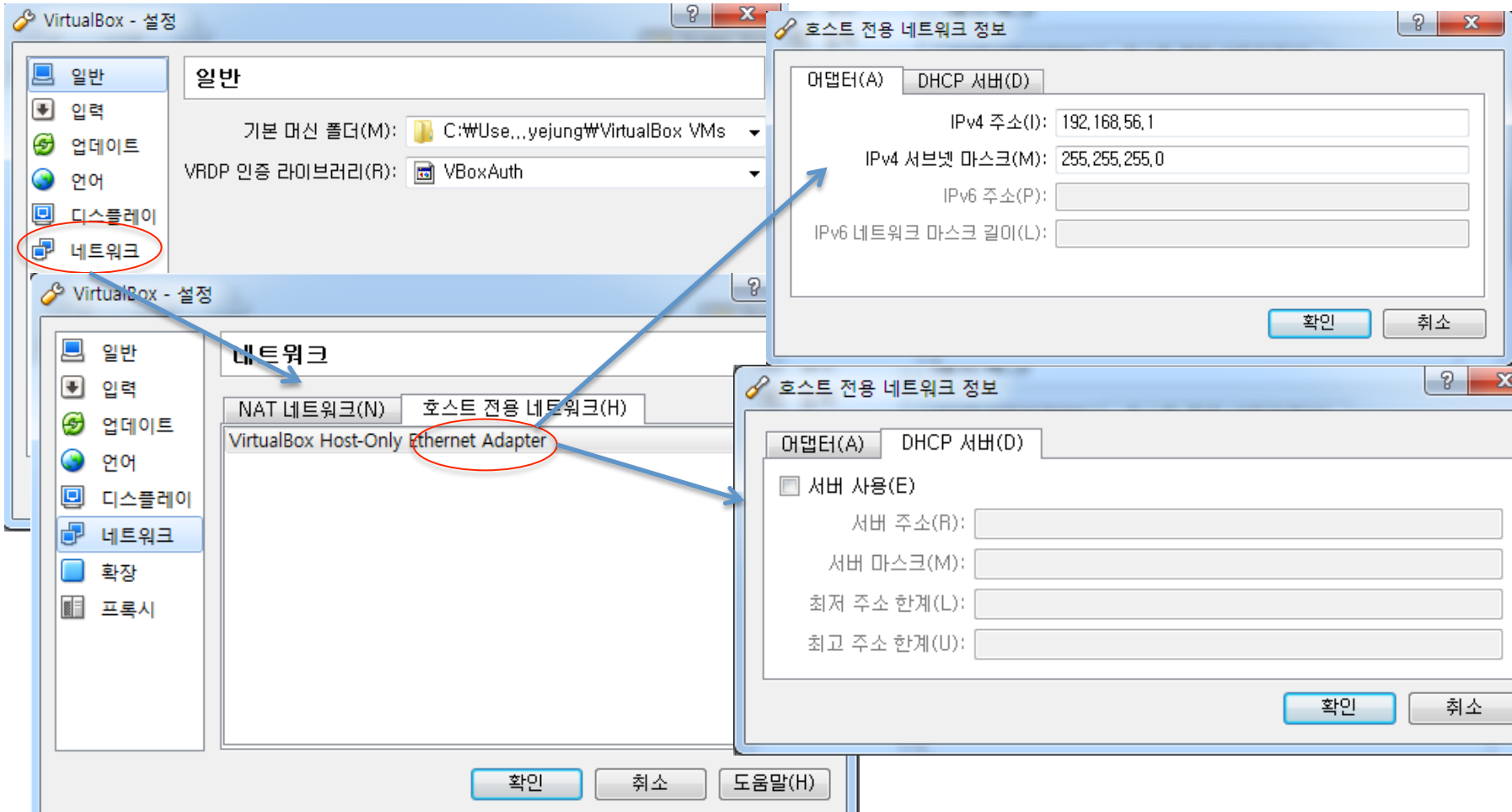


Setup VM network(eth0)

- eth0은 virtualbox를 사용할 경우 무조건 생성된다.
- eth0은 특정네트워크 주소 (10.0.2.15)를 가진다.
- 별도로 생성할 필요가 없다.

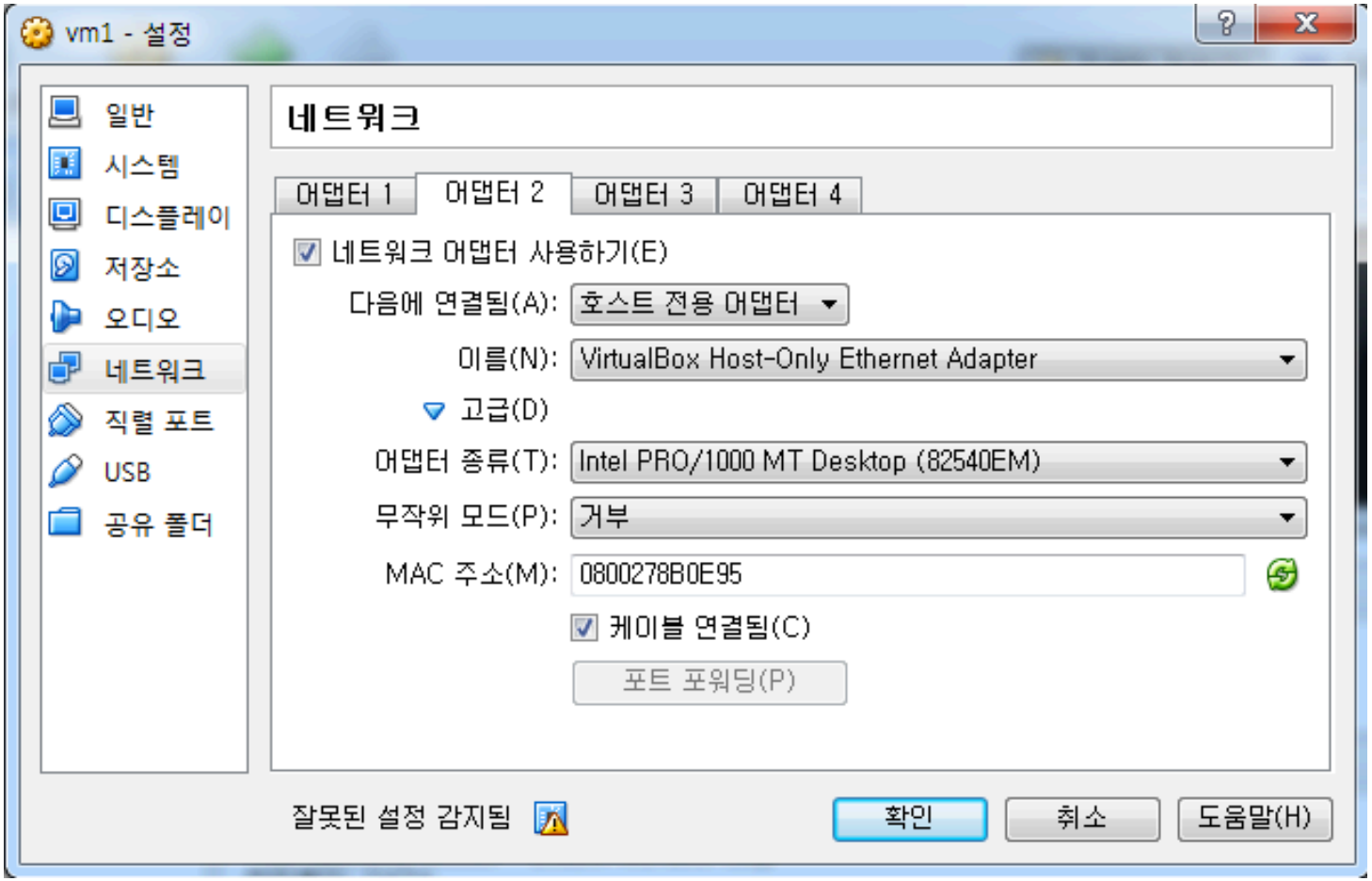
Setup VM network(eth1)

- File → 환경설정



Go to ‘Oracle VM Virtualbox관리자’

- vm 선택 → 설정 → 네트워크 → 어댑터 2 선택



vm1, network setup

- start vm1
- start terminal: right click → 'open in terminal'

```
[root@vm1 Desktop]# service NetworkManager stop
[root@vm1 Desktop]# chkconfig NetworkManager off
[root@vm1 Desktop]# vi /etc/sysconfig/network-scripts/ifcfg-eth0
```

```
DEVICE=eth0
HWADDR=08:00:27:74:93:E2
TYPE=Ethernet
UUID=c7c60586-c2a4-4f8e-ba0b-dd30145da96d
ONBOOT=yes
NM_CONTROLLED=no
BOOTPROTO=dhcp
IPV6INIT=no
USERCTL=no
```

vm1, network setup

- in terminal:

```
[root@vm1 Desktop]# vi /etc/sysconfig/network-scripts/ifcfg-eth1
```

```
DEVICE=eth1
BOOTPROTO=none
NETMASK=255.255.255.0
TYPE=Ethernet
ONBOOT=yes
IPADDR=192.168.59.11
```

vm1, network setup

- in terminal:

```
[root@vm1 ~]# route -n
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
10.0.2.0        0.0.0.0         255.255.255.0   U     0      0        0 eth0
192.168.59.0    0.0.0.0         255.255.255.0   U     0      0        0 eth1
192.168.122.0   0.0.0.0         255.255.255.0   U     0      0        0 virbr0
169.254.0.0     0.0.0.0         255.255.0.0     U     1002   0        0 eth0
169.254.0.0     0.0.0.0         255.255.0.0     U     1003   0        0 eth1
0.0.0.0         10.0.2.2        0.0.0.0         UG    0      0        0 eth0
```

vm1, Add hosts

- in terminal:

```
[root@vm1 Desktop]# vi /etc/hosts
```

```
127.0.0.1   localhost localhost.localdomain
::1         localhost localhost.localdomain

192.168.59.11 vm1
192.168.59.12 vm2
```

vm1, check ping

- in terminal:

```
[root@vm1 ~]# ping vm1
PING vm1 (192.168.59.11) 56(84) bytes of data.
64 bytes from vm1 (192.168.59.11): icmp_seq=1 ttl=64 time=0.040 ms
64 bytes from vm1 (192.168.59.11): icmp_seq=2 ttl=64 time=0.105 ms
64 bytes from vm1 (192.168.59.11): icmp_seq=3 ttl=64 time=0.044 ms
^C
--- vm1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2882ms
rtt min/avg/max/mdev = 0.040/0.063/0.105/0.029 ms
```

core-site.xml 수정

- vi $HADOOP_HOME/conf/core-site.xml 에 아래 내용 입력

```
<property>
  <name>fs.default.name</name>
  <value>hdfs://192.168.59.11:9000</value>
</property>

<property>
  <name>hadoop.tmp.dir</name>
  <value>/home/hadoop/hadoop/tmp</value>
</property>
```

Hadoop 설정 (3)

- conf/hdfs-site.xml 에 아래 내용 입력

```
<property>
  <name>dfs.name.dir</name>
  <value>/home/hadoop/dfs/name</value>
</property>

<property>
  <name>dfs.name.edits.dir</name>
  <value>${dfs.name.dir}</value>
</property>

<property>
  <name>dfs.data.dir</name>
  <value>/home/hadoop/dfs/data</value>
</property>
```

mapred-site.xml

- conf/mapred-site.xml 에 아래 내용 입력

```
<property>
  <name>mapred.job.tracker</name>
  <value><IP Address>:9001</value>
</property>

<property>
  <name>mapred.local.dir</name>
  <value>/home/hadoop/mapred/local</value>
</property>

<property>
  <name>mapred.system.dir</name>
  <value>/home/hadoop/mapred/system</value>
</property>
```

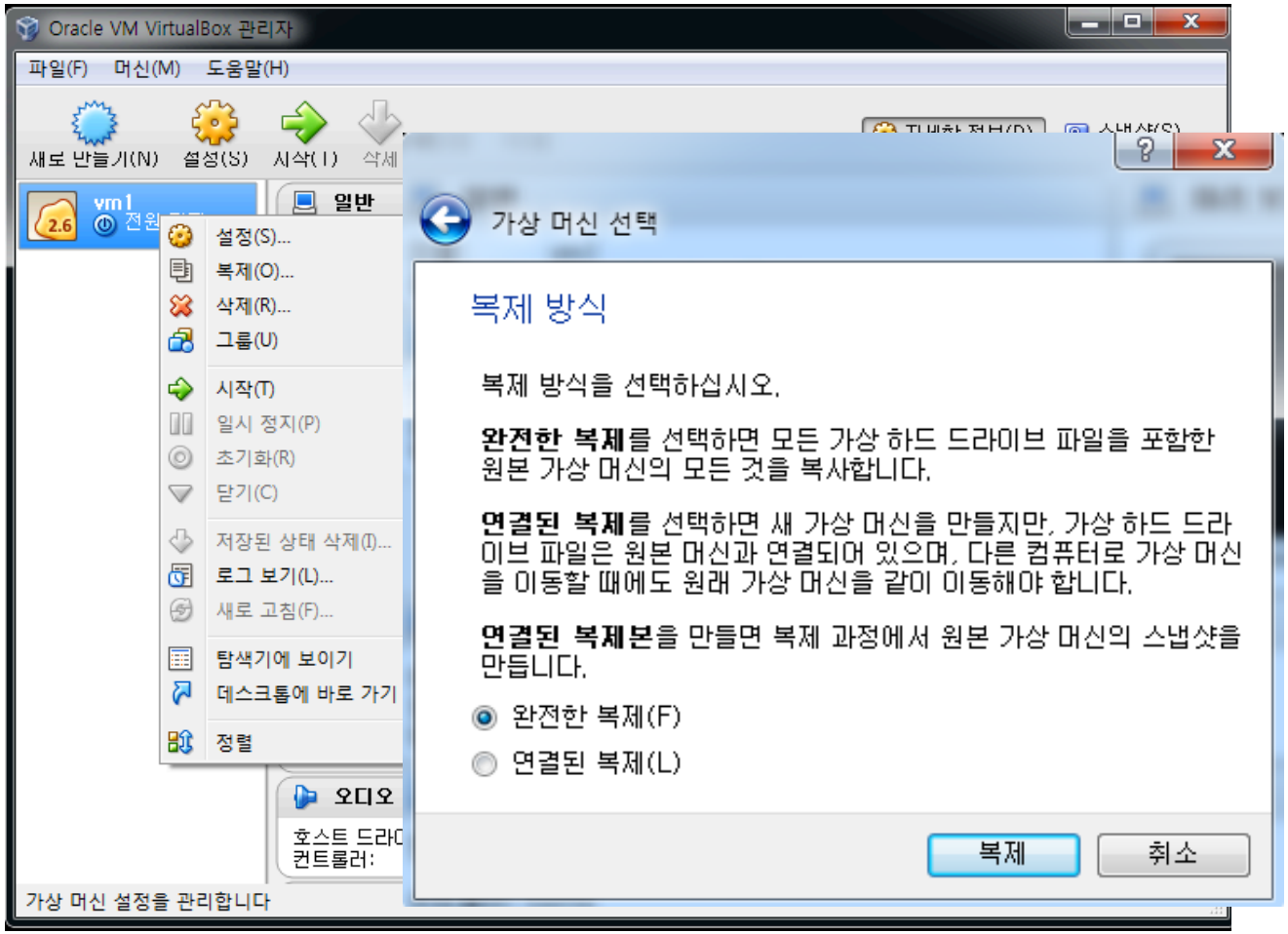
Hadoop 설정 (5)

- conf/slaves

```
vm1
vm2
```

- VirtualBox VM1 복제

VirtualBox 복제



VM2, hostname

- Change hostname and stop iptables, delete directory

```
[root@vm2 Desktop]# vi /etc/sysconfig/network
```

```
vm2
```

```
[root@vm2 Desktop]# service iptables  stop
[root@vm2 Desktop]# chkconfig iptables off
[root@vm2 Desktop]# rm –rf ~/dfs
```

- and , reboot vm2

```
[root@vm2 Desktop]# reboot
```

Vm1/2, ssh setting

```
[root@vm1 ~]# ssh-keygent –t rsa
[root@vm1 ~]# cat ~/.ssh/id_rsa.pub >& ~/.ssh/authorized_keys
[root@vm1 ~]# chmod 600 ~/.ssh/authorized_keys
[root@vm1 ~]# scp –dpr ~/.ssh vm2:~/
```

Delete copied data store from vm2

```
[hadoop@vm1 ~]# rm –rf /home/hadoop/dfs
```

From VM1, ping and ssh check

- Ping and ssh check to VM2

```
[root@vm1 ~]# ping vm2
PING vm1 (192.168.59.11) 56(84) bytes of data.
64 bytes from vm1 (192.168.59.12): icmp_seq=1 ttl=64 time=0.040 ms
64 bytes from vm1 (192.168.59.12): icmp_seq=2 ttl=64 time=0.105 ms
```

```
[root@vm1 ~]# ssh vm2

[root@vm2 ~]# hostname
vm2

[root@vm2 ~]# exit
```

From vm1

- Start HDFS by

```
[root@vm1 ~]# cd hadoop
[root@vm1 hadoop]# bin/start-dfs.sh
```

- start MapReduce by

```
[root@vm1 hadoop]# bin/start-mapred.sh
```

http://192.168.59.11:50030

vm1 Hadoop Map/Reduce Administration

State: RUNNING
Started: Sat Mar 28 14:48:48 KST 2015
Version: 1.2.1, r1503152
Compiled: Mon Jul 22 15:23:09 PDT 2013 by mattf
Identifier: 201503281448
SafeMode: OFF

Cluster Summary (Heap Size is 29.62 MB/966.69 MB)

Running Map Tasks	Running Reduce Tasks	Total Submissions	Nodes	Occupied Map Slots	Occupied Reduce Slots	Reserved Map Slots	Reserved Reduce Slots	Map Task Capacity	Reduce Task Capacity	Avg. Tasks/Node	Blacklisted Nodes
0	0	0	2	0	0	0	0	4	4	4.00	0

---

http://192.168.59.11:50070

NameNode 'vm1:9000'

Started:	Sat Mar 28 14:48:36 KST 2015
Version:	1.2.1, r1503152
Compiled:	Mon Jul 22 15:23:09 PDT 2013 by mattf
Upgrades:	There are no upgrades in progress.

Browse the filesystem
Namenode Logs

Cluster Summary

6 files and directories, 2 blocks = 8 total. Heap Size is 29.62 MB / 966.69 MB (3%)

Configured Capacity	:	16.5 GB
DFS Used	:	80 KB
Non DFS Used	:	10.96 GB
DFS Remaining	:	5.54 GB
DFS Used%	:	0 %
DFS Remaining%	:	33.58 %
Live Nodes	:	2
Dead Nodes	:	0
Decommissioning Nodes	:	0
Number of Under-Replicated Blocks	:	1