

# Deploy 3shard cluster in Sigapore

이번에는 sigapore instance 로 centos 7.9 , percona for mongodb server 5.0 3 Shard cluster 을 구성할 것이다.

.conf 파일 의 위치는

data/conf

data/log

data/db ( 각 DB 별로 디렉토리를 생성할 수 있도록 하자

```
[root@ip-172-31-30-103 centos]# mkdir data
[root@ip-172-31-30-103 centos]# cd data
[root@ip-172-31-30-103 data]# mkdir log
[root@ip-172-31-30-103 data]# mkdir dbs
[root@ip-172-31-30-103 data]# mkdir config
[root@ip-172-31-30-103 data]# ls
config  dbs  log
```

저장 디렉토리 등을 바꾸게 되면 linux default init script 를 수정하라고 공식 문서에는 나온다.

MongoDB Document 발췌 →

*The Linux package init scripts do not expect [storage.dbPath](#) to change from the defaults. If you use the Linux packages and change [storage.dbPath](#), you will have to use your own init scripts and disable the built-in scripts.*

\*진짜 공포 그 자체다. MongoDB 는 default 로 설정되어있는 기본 path 들을 바꾸지 않을 것을 권장한다고 한다. 할..

하지만 그곳이 바로 내가 가야할길...

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<https://www.mongodb.com/docs/manual/tutorial/install-mongodb-on-red-hat/#std-label-install-rhel-configure-selinux>

If your MongoDB deployment uses custom settings for any of the following:

- MongoDB connection ports
- dbPath
- systemLog.path
- pidFilePath

You cannot use the MongoDB supplied SELinux policy. An alternative is to create a [custom SELinux policy](#), however an improperly written custom policy may be less secure or may stop your [mongod](#) instance from working.

*SELinux 설정을 수정해 주어야한다.*

**(진행중)**

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참고 <https://www.mongodb.com/community/forums/t/change-dbpath-on-ubuntu/4911>

*> sudo systemctl status mongod*

*이 명령어로 init 파일이 어딴지 확인할 수 있다.*

```
[root@ip-172-31-30-103 centos]# sudo systemctl status mongod
● mongod.service - High-performance, schema-free document-oriented database
   Loaded: loaded (/usr/lib/systemd/system/mongod.service; enabled; vendor preset: disabled)
   Active: failed (Result: exit-code) since Wed 2022-10-19 08:20:41 UTC; 21min ago
     Process: 2916 ExecStart=/usr/bin/env bash -c ${NMMACTL} /usr/bin/mongod ${OPTIONS} > ${STDOUT} 2> ${STDERR} (code=exited, status=14)
     Process: 2897 ExecStartPre=/usr/bin/percona-server-mongodb-helper.sh (code=exited, status=0/SUCCESS)
    Main PID: 2084 (code=exited, status=0/SUCCESS)

Oct 19 08:20:41 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: Starting High-performance, schema-free document-oriented database...
Oct 19 08:20:41 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: mongod.service: control process exited, code=exited status=14
Oct 19 08:20:41 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: Failed to start High-performance, schema-free document-oriented database.
Oct 19 08:20:41 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: Unit mongod.service entered failed state.
Oct 19 08:20:41 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: mongod.service failed.
[root@ip-172-31-30-103 centos]#
```

해당 위치의 text 파일을 조회 해보자

```
Oct 20 00:30:11 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: mongod.service failed.  
[root@ip-172-31-30-103 centos]# cat /usr/lib/systemd/system/mongod.service  
[Unit]  
Description=High-performance, schema-free document-oriented database  
After=time-sync.target network.target  
  
[Service]  
Type=forking  
User=mongod  
Group=mongod  
PermissionsStartOnly=true  
LimitFSIZE=infinity  
LimitCPU=infinity  
LimitAS=infinity  
LimitNOFILE=64000  
LimitNPROC=64000  
EnvironmentFile=/etc/sysconfig/mongod  
ExecStartPre=/usr/bin/percona-server-mongodb-helper.sh  
ExecStart=/usr/bin/env bash -c "${NMACTL} /usr/bin/mongod ${OPTIONS} > ${STDOUT} 2> ${STDERR}"  
PIDFile=/var/run/mongod.pid  
  
[Install]  
WantedBy=multi-user.target  
[root@ip-172-31-30-103 centos]#
```

enviornmentFile 부분에 conf 파일을 내가 임의로 만든 config 파일로 수정해 보았다.

일단 아래 명령어로 서버를 시작했을 때 별 문제없이 포 그라운드 에서 구동되는 것으로 보아 .conf 파일에는 문제가 없다.

```
# mongod --conf data/conf/mongod.conf
```

백그라운드에서 실행될 수 있도록 로그들을 뒤져보던 도중 journalctl -xe 명령어를 이용하여 로그에서 한가지 원인점을 찾았다.

```
[root@ip-172-31-30-103 centos]# journalctl -xe  
- The start-up result is done.  
Oct 20 00:30:11 ip-172-31-30-103.ap-southeast-1.compute.internal nm-dispatcher[26310]: req:1 'dhcp4-change' [eth0]: now request (4 scripts)  
Oct 20 00:30:11 ip-172-31-30-103.ap-southeast-1.compute.internal nm-dispatcher[26310]: req:1 'dhcp4-change' [eth0]: start running ordered scripts...  
Oct 20 00:30:11 ip-172-31-30-103.ap-southeast-1.compute.internal polkitd[400]: Registered Authentication Agent for unix-process:26330:6193721 (system bus name :1.156 /usr/bin/pktyagent --notify-fd 5 --fal  
Oct 20 00:30:11 ip-172-31-30-103.ap-southeast-1.compute.internal polkitd[400]: Registered Authentication Agent for unix-process:26330:6193721 (system bus name :1.156, object path /org/freedesktop/PolicyKit1  
Oct 20 00:30:11 ip-172-31-30-103.ap-southeast-1.compute.internal polkitd[400]: Registered Authentication Agent for unix-process:26330:6194254 (system bus name :1.157 /usr/bin/pktyagent --notify-fd 5 --fal  
Oct 20 00:30:10 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: Reloading.  
Oct 20 00:30:10 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: /usr/lib/systemd/system/mongod.service:151 Path = data/conf/mongod.conf' is not absolute, ignoring.  
Oct 20 00:30:10 ip-172-31-30-103.ap-southeast-1.compute.internal polkitd[400]: Unregistered Authentication Agent for unix-process:26351:6194254 (system bus name :1.157, object path /org/freedesktop/PolicyKit1  
Oct 20 00:30:24 ip-172-31-30-103.ap-southeast-1.compute.internal polkitd[400]: Registered Authentication Agent for unix-process:26384:6104842 (system bus name :1.158 /usr/bin/pktyagent --notify-fd 5 --fal  
Oct 20 00:30:24 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: Starting High-performance, schema-free document-oriented database...  
-- Subject: Unit mongod.service has begun start-up  
-- Defined-By: systemd  
-- Support: http://lists.freedesktop.org/mailman/listinfo/systemd-devel
```

절대 경로로 주어지지 않아서 생기는 문제일 수 있을 것 같다.

```
sd[1]: Unit mongod.service entered failed state.  
sd[1]: mongod.service failed.  
sd[480]: Unregistered Authentication Agent for unix-process:26876:6249081 (system bus name :1.159, object path /org/freedesktop/PolicyKit1/AuthenticationAgent) (system bus name :1.159, object path /org/freedesktop/PolicyKit1/AuthenticationAgent)  
sd[480]: Registered Authentication Agent for unix-process:27184:6283653 (system bus name :1.160 /usr/bin/pktyagent --notify-fd 5 --fallback), object path /org/freedesktop/PolicyKit1/AuthenticationAgent  
sd[1]: Reloading.  
sd[1]: [/usr/lib/systemd/system/mongod.service:151] Path = '/home/centos/data/config/mongod.conf' is not absolute, ignoring.  
sd[480]: Unregistered Authentication Agent for unix-process:27184:6283653 (system bus name :1.160, object path /org/freedesktop/PolicyKit1/AuthenticationAgent) (system bus name :1.160, object path /org/freedesktop/PolicyKit1/AuthenticationAgent)  
sd[480]: Registered Authentication Agent for unix-process:27218:6284293 (system bus name :1.161 /usr/bin/pktyagent --notify-fd 5 --fallback), object path /org/freedesktop/PolicyKit1/AuthenticationAgent  
sd[1]: Starting High-performance, schema-free document-oriented database...
```

같은 문제가 반복된다. 그럼 정상적으로 작동하는 다른 서버에서 같은 부분을 조회 해 본다면 /etc/sysconfig/mongod 가 해당 textline 에 존재하는데 이것을 조회해 보았다.

```
OPTIONS="-f /etc/mongod.conf"
STDOUT="/var/log/mongo/mongod.stdout"
STDERR="/var/log/mongo/mongod.stderr"
NUMACTL="numactl --interleave=all"
```

을 이것을 바꾸어보면 문제가 해결 될 수 있을 것 같다. 한번 수정 해보자

```
OPTIONS="-f /home/centos/data/config/mongod.conf"
STDOUT="/home/centos/data/log/mongo/mongod.stdout"
STDERR="/home/centos/data/log/mongo/mongod.stderr"
NUMACTL="numactl --interleave=all"
```

이렇게 바꾸어주고

data/log/ 디렉토리에 mongo/mongod.stdout 과 mongo/mongod.stderr 을 만들어주었다.

# systemctl daemon-reload 하고 시작해 보았더니 에러. 이번에는

```
- Unit mongod.service has begun starting up.
ct 20 01:01:20 ip-172-31-30-103.ap-southeast-1.compute.internal env[27667]: bash: /home/centos/data/log/mongo/mongod.stdout: Permission denied
ct 20 01:01:20 ip-172-31-30-103.ap-southeast-1.compute.internal polkitd[480]: Unregistered Authentication Agent for unix-process:27641:6326410 (system bus na
ct 20 01:01:20 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: mongod.service: control process exited, code=exited status=1
ct 20 01:01:20 ip-172-31-30-103.ap-southeast-1.compute.internal systemd[1]: Failed to start High-performance, schema-free document-oriented database.
- Subject: Unit mongod.service has failed
```

권한 문제이다

--> 권한 문제가 아닌듯 하다. 권한을 부여하고 직접 체크까지 하였는데도 같은 오류의 반복이다. 조금 더 뜯어봐야 겠다.

```
Active: failed (result: exit-code) since Thu 2022-10-20 01:48:01 UTC; 10min ago
Process: 29440 ExecStart=/usr/bin/env bash -c $(NUMACTL) /usr/bin/mongod $(OPTIONS) > $(STDOUT) 2> $(STDERR) (code=exited, status=134)
Process: 29421 ExecStartPre=/usr/bin/persona-server-mongodb-helper.sh (code=exited, status=0/SUCCESS)
Main PID: 29425 (code=exited, status=0/SUCCESS)

Oct 20 01:48:01 ip-172-31-22-168.ap-southeast-1.compute.internal systemd[1]: Starting High-performance, schema-free document-oriented database...
Oct 20 01:48:01 ip-172-31-22-168.ap-southeast-1.compute.internal systemd[1]: mongod.service: control process exited, code=exited status=134
Oct 20 01:48:01 ip-172-31-22-168.ap-southeast-1.compute.internal systemd[1]: Failed to start High-performance, schema-free document-oriented database.
Oct 20 01:48:01 ip-172-31-22-168.ap-southeast-1.compute.internal systemd[1]: Unit mongod.service entered failed state.
Oct 20 01:48:01 ip-172-31-22-168.ap-southeast-1.compute.internal systemd[1]: mongod.service failed.
[root@ip-172-31-22-168 centos]# cat
```

이 파일을 뒤져보자

```

#!/bin/bash
#
PATH="${PATH}:/usr/local/bin:/usr/bin:/usr/local/sbin:/usr/sbin"
#
touch /var/run/mongod.pid
touch /var/log/mongo/mongod.{stdout,stderr}
chown mongod:mongod /var/run/mongod.pid
chown -R mongod:mongod /var/log/mongo
#
KTHP=/sys/kernel/mm/transparent_hugepage
#
[ -z "${CONF}" ] && CONF=/etc/mongod.conf
#
print_error(){
    echo " * Error disabling Transparent Huge pages, exiting"
    exit 1
}
#
. /etc/sysconfig/mongod
DAEMON_OPTS="${OPTIONS}"
#
# Handle NUMA access to CPUs (SERVER-3574)
# This verifies the existence of numactl as well as testing that the command works
NUMACTL_ARGS="--interleave=all"
if which numactl >/dev/null 2>/dev/null && numactl $NUMACTL_ARGS ls / >/dev/null 2>/dev/null
then
    NUMACTL="numactl $NUMACTL_ARGS"
    DAEMON_OPTS="${DAEMON_OPTS}--config $CONF"
    NUMA_CONF=$(grep -c 'NUMACTL="numactl --interleave=all"' /etc/sysconfig/mongod)
    if [ $NUMA_CONF = 0 ]
    then
        echo 'NUMACTL="numactl --interleave=all"' >> /etc/sysconfig/mongod
    fi
else
    NUMACTL=""
    DAEMON_OPTS="${DAEMON_OPTS}--config $CONF"
fi
#
# checking if storageEngine is defined twice (in default and config file)
defaults=$(echo "${OPTIONS}" | egrep -o 'storageEngine.*' | tr -d '[:blank:]' | awk -F=' ' '{print $NF}' 2>/dev/null)
config=$(egrep -o '^[[:blank:]]+engine.*' ${CONF} | tr -d '[:blank:]' | awk -F=' ' '{print $NF}' 2>/dev/null)
#
if [ -n "${defaults}" ] && [ -n "${config}" ]; then # engine is set in 2 places
    if [ "${defaults}" == "${config}" ]; then # it's OK
        echo " * Warning, engine is set both in defaults file and mongod.conf!"
    else
        echo " * Error, different engines are set in the same time!"
        exit 1
    fi
fi
# disable THP
"/usr/bin/percona-server-mongodb-helper.sh" 521 1028C

```

뭔가 확실히 바뀌기 전의 경로가 들어가 있는게 보인다. 바꿔서 실행해본다

---

현재 시간 16:11 분 벌써 같은 작업을 6 시간 쯤 하고 있는 듯하다. 실마리를 얻을 수 있는 외국 블로그를 찾았는데

<https://www.techrunnr.com/change-mongodb-default-data-path-in-linux/>

이곳에서는 conf 파일의 위치를 새로 설정하지 는 않는다. 아마 이게 차이 였던 것 같은데..

---

```

[root@ip-172-31-19-247 centos]# systemctl status mongod
● mongod.service - High-performance, schema-free document-oriented database
   Loaded: loaded (/usr/lib/systemd/system/mongod.service; enabled; vendor preset: disabled)
   Active: failed (Result: timeout) since Thu 2022-10-20 07:24:08 UTC; 48s ago
     Process: 13803 ExecStartPre=/usr/bin/env bash -c ${NMJACTL} /usr/bin/mongod ${OPTIONS} > ${STDOUT} 2> ${STDERR} (code=exited, status=0/SUCCESS)
     Process: 13874 ExecStartPre=/usr/bin/percona-server-mongodb-helper.sh (code=exited, status=0/SUCCESS)
    Main PID: 2033 (code=exited, status=0/SUCCESS)

Oct 20 07:22:38 ip-172-31-19-247.ap-southeast-1.compute.internal systemd[1]: Starting High-performance, schema-free document-oriented database...
Oct 20 07:22:39 ip-172-31-19-247.ap-southeast-1.compute.internal systemd[1]: Failed to parse PID from file /var/run/mongod.pid: Invalid argument
Oct 20 07:24:08 ip-172-31-19-247.ap-southeast-1.compute.internal systemd[1]: mongod.service start operation timed out. Terminating.
Oct 20 07:24:08 ip-172-31-19-247.ap-southeast-1.compute.internal systemd[1]: Failed to start High-performance, schema-free document-oriented database.
Oct 20 07:24:08 ip-172-31-19-247.ap-southeast-1.compute.internal systemd[1]: Unit mongod.service entered failed state.
Oct 20 07:24:08 ip-172-31-19-247.ap-southeast-1.compute.internal systemd[1]: mongod.service failed.
[root@ip-172-31-19-247 centos]# /usr/lib/systemd/system/mongod.service
bash: /usr/lib/systemd/system/mongod.service: Permission denied
[root@ip-172-31-19-247 centos]# vi /usr/lib/systemd/system/mongod.service
[root@ip-172-31-19-247 centos]# systemctl daemon-reload
Unknown operation 'daemon-reload'
[root@ip-172-31-19-247 centos]# systemctl daemon-reload
[root@ip-172-31-19-247 centos]# systemctl start mongod

```

으아각

성공이다... 백그라운드에서 *mongod service* 가 실행되는 것을 확인했다.

```

[root@ip-172-31-19-247 centos]# systemctl daemon-reload
[root@ip-172-31-19-247 centos]# systemctl start mongod
[root@ip-172-31-19-247 centos]# systemctl status mongod.service
● mongod.service - High-performance, schema-free document-oriented database
   Loaded: loaded (/usr/lib/systemd/system/mongod.service; enabled; vendor preset: disabled)
   Active: active (running) since Thu 2022-10-20 08:45:58 UTC; 18s ago
     Process: 18221 ExecStartPre=/usr/bin/env bash -c ${NMJACTL} /usr/bin/mongod ${OPTIONS} > ${STDOUT} 2> ${STDERR} (code=exited, status=0/SUCCESS)
     Process: 18202 ExecStartPre=/usr/bin/percona-server-mongodb-helper.sh (code=exited, status=0/SUCCESS)
    Main PID: 18225 (mongod)
   CGroup: /system.slice/mongod.service
           └─18225 /usr/bin/mongod -f /etc/mongod.conf

Oct 20 08:45:57 ip-172-31-19-247.ap-southeast-1.compute.internal systemd[1]: Starting High-performance, schema-free document-oriented database...
Oct 20 08:45:58 ip-172-31-19-247.ap-southeast-1.compute.internal systemd[1]: Started High-performance, schema-free document-oriented database.
[root@ip-172-31-19-247 centos]#

```

이제 원리를 설명해 보자 먼저 MongoDB 공식 문서에서는 db 경로나 log 경로를 바꾸는 것을 추천하지 않는다.

경로를 바꿀 때 UNIX ulimit Settings 때문에 정상 작동 하지 않을 수 있고 setting 을 바꿔야한다고 한다. ( SELinux )

경로 설정을 바꾸기 위한 공식 문서의 내용이다.

[https://www.mongodb.com/docs/v6.0/tutorial/install-mongodb-on-red-hat-tarball/?\\_ga=2.83624976.748597865.1666138930-1561343718.1665724188#to-use-non-default-directories](https://www.mongodb.com/docs/v6.0/tutorial/install-mongodb-on-red-hat-tarball/?_ga=2.83624976.748597865.1666138930-1561343718.1665724188#to-use-non-default-directories)

*config* 파일의 위치를 바꾸어보려는 시도에서 문제가 있었던 것 같다. 이것을 익일  
임무로 다시 한번 도전해 보도록 하겠다.