```
chosun@chosun-VirtualBox:~$
/// ***************************************************************************** ///
>>> start-all.sh - 전체 하둡 데몬들 실행시킵니다.
>>> jps - 실행중인 하둡 데몬들(자바 프로세서) 확인합니다.
/// ***************************************************************************** ///
chosun@chosun-VirtualBox:~$ jps
22926 Jps
chosun@chosun-VirtualBox:~$
chosun@chosun-VirtualBox:~$ start-all.sh
starting namenode, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-namenode-chosun-VirtualBox.out
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
localhost: starting datanode, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-datanode-chosun-VirtualBox.out
localhost: WARNING: An illegal reflective access operation has occurred
localhost: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
localhost: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
localhost: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
localhost: WARNING: All illegal access operations will be denied in a future release
localhost: starting secondarynamenode, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-secondarynamenode
-chosun-VirtualBox.out
localhost: WARNING: An illegal reflective access operation has occurred
localhost: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
localhost: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
localhost: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
localhost: WARNING: All illegal access operations will be denied in a future release
starting jobtracker, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-jobtracker-chosun-VirtualBox.out
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
localhost: starting tasktracker, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-tasktracker-chosun-VirtualBox.out
localhost: WARNING: An illegal reflective access operation has occurred
localhost: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
localhost: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
localhost: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
localhost: WARNING: All illegal access operations will be denied in a future release
chosun@chosun-VirtualBox:~$
chosun@chosun-VirtualBox:~$ jps
23537 JobTracker
23745 TaskTracker
23218 DataNode
23828 Jps
23431 SecondaryNameNode
23004 NameNode
chosun@chosun-VirtualBox:~$
```

>>> hadoop namenode - 네임노드만 실행시켜보고, 정상적으로 돌아가는걸 확인합니다. (사진 2-2, 로그는 첨부하지 않았습니다.)

>>> hadoop secondarynamenode - 보조네임노드만 실행시켜보고, 정상적으로 돌아가는걸 확인합니다. (사진 2-3, 로그는 첨부하지 않았습니다.)

```
chosun@chosun-VirtualBox:~$ hadoop namenode
19/05/20 22:24:41 INFO namenode.NameNode: STARTUP_MSG:
/************************************************************
STARTUP_MSG: Starting NameNode
STARTUP_MSG:   host = chosun-VirtualBox/127.0.1.1
STARTUP_MSG:   args = []
STARTUP_MSG:   version = 1.2.1
STARTUP_MSG:   build = https://svn.apache.org/repos/asf/hadoop/common/branches/branch-1.2 -r 1503152; compiled by 'mattf' on Mon Jul 22 15:23:09 PDT 2013
STARTUP_MSG:   java = 11.0.3
************************************************************/
19/05/20 22:24:41 INFO impl.MetricsConfig: loaded properties from hadoop-metrics2.properties
19/05/20 22:24:41 INFO impl.MetricsSourceAdapter: MBean for source MetricsSystem,sub=Stats registered.
19/05/20 22:24:41 INFO impl.MetricsSystemImpl: Scheduled snapshot period at 10 second(s).
19/05/20 22:24:41 INFO impl.MetricsSystemImpl: NameNode metrics system started
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
19/05/20 22:24:42 INFO impl.MetricsSourceAdapter: MBean for source ugi registered.
19/05/20 22:24:42 WARN impl.MetricsSystemImpl: Source name ugi already exists!
19/05/20 22:24:42 INFO impl.MetricsSourceAdapter: MBean for source jvm registered.
19/05/20 22:24:42 INFO impl.MetricsSourceAdapter: MBean for source NameNode registered.
19/05/20 22:24:42 INFO util.GSet: Computing capacity for map BlocksMap
19/05/20 22:24:42 INFO util.GSet: VM type       = 64-bit
19/05/20 22:24:42 INFO util.GSet: 2.0% max memory = 1048576000
19/05/20 22:24:42 INFO util.GSet: capacity      = 2^21 = 2097152 entries
19/05/20 22:24:42 INFO util.GSet: recommended=2097152, actual=2097152
19/05/20 22:24:42 INFO namenode.FSNamesystem: fsOwner=chosun
19/05/20 22:24:42 INFO namenode.FSNamesystem: supergroup=supergroup
19/05/20 22:24:42 INFO namenode.FSNamesystem: isPermissionEnabled=true
19/05/20 22:24:42 INFO namenode.FSNamesystem: dfs.block.invalidate.limit=100
19/05/20 22:24:42 INFO namenode.FSNamesystem: isAccessTokenEnabled=false accessKeyUpdateInterval=0 min(s), accessTokenLifetime=0 min(s)
19/05/20 22:24:42 INFO namenode.FSNamesystem: Registered FSNamesystemStateMBean and NameNodeMXBean
19/05/20 22:24:42 INFO namenode.FSEditLog: dfs.namenode.edits.toleration.length = 0
19/05/20 22:24:42 INFO namenode.NameNode: Caching file names occuring more than 10 times
19/05/20 22:24:42 INFO common.Storage: Cannot lock storage /home/chosun/hadoop-data/dfs/name. The directory is already locked.
19/05/20 22:24:42 ERROR namenode.FSNamesystem: FSNamesystem initialization failed.
java.io.IOException: Cannot lock storage /home/chosun/hadoop-data/dfs/name. The directory is already locked.
        at org.apache.hadoop.hdfs.server.common.Storage$StorageDirectory.lock(Storage.java:599)
        at org.apache.hadoop.hdfs.server.common.Storage$StorageDirectory.analyzeStorage(Storage.java:452)
        at org.apache.hadoop.hdfs.server.namenode.FSImage.recoverTransitionRead(FSImage.java:299)
        at org.apache.hadoop.hdfs.server.namenode.FSDirectory.loadFSImage(FSDirectory.java:104)
        at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.initialize(FSNamesystem.java:427)
        at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.<init>(FSNamesystem.java:395)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.initialize(NameNode.java:299)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.<init>(NameNode.java:569)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.createNameNode(NameNode.java:1479)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.main(NameNode.java:1488)
19/05/20 22:24:42 ERROR namenode.NameNode: java.io.IOException: Cannot lock storage /home/chosun/hadoop-data/dfs/name. The directory is already locked.
        at org.apache.hadoop.hdfs.server.common.Storage$StorageDirectory.lock(Storage.java:599)
        at org.apache.hadoop.hdfs.server.common.Storage$StorageDirectory.analyzeStorage(Storage.java:452)
        at org.apache.hadoop.hdfs.server.namenode.FSImage.recoverTransitionRead(FSImage.java:299)
```

```
        at org.apache.hadoop.hdfs.server.namenode.FSDirectory.loadFSImage(FSDirectory.java:104)
        at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.initialize(FSNamesystem.java:427)
        at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.<init>(FSNamesystem.java:395)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.initialize(NameNode.java:299)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.<init>(NameNode.java:569)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.createNameNode(NameNode.java:1479)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.main(NameNode.java:1488)
19/05/20 22:24:42 INFO namenode.NameNode: SHUTDOWN_MSG:
/************************************************************
SHUTDOWN_MSG: Shutting down NameNode at chosun-VirtualBox/127.0.1.1
************************************************************/
chosun@chosun-VirtualBox:~$
chosun@chosun-VirtualBox:~$ hadoop secondarynamenode
19/05/20 22:24:49 INFO namenode.SecondaryNameNode: STARTUP_MSG:
/************************************************************
STARTUP_MSG: Starting SecondaryNameNode
STARTUP_MSG:   host = chosun-VirtualBox/127.0.1.1
STARTUP_MSG:   args = []
STARTUP_MSG:   version = 1.2.1
STARTUP_MSG:   build = https://svn.apache.org/repos/asf/hadoop/common/branches/branch-1.2 -r 1503152; compiled by 'mattf' on Mon
Jul 22 15:23:09 PDT 2013
STARTUP_MSG:   java = 11.0.3
************************************************************/
19/05/20 22:24:49 INFO namenode.SecondaryNameNode: dfs.namenode.edits.toleration.length is set to 0.Override it with -1, i.e. disable it.
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
19/05/20 22:24:49 INFO common.Storage: Cannot lock storage /home/chosun/hadoop-data/dfs/namesecondary. The directory is already
locked.
Exception in thread "main" java.io.IOException: Cannot lock storage /home/chosun/hadoop-data/dfs/namesecondary. The directory is
already locked.
        at org.apache.hadoop.hdfs.server.common.Storage$StorageDirectory.lock(Storage.java:599)
        at org.apache.hadoop.hdfs.server.common.Storage$StorageDirectory.analyzeStorage(Storage.java:452)
        at org.apache.hadoop.hdfs.server.namenode.SecondaryNameNode$CheckpointStorage.recoverCreate(SecondaryNameNode.java:724)
        at org.apache.hadoop.hdfs.server.namenode.SecondaryNameNode.initialize(SecondaryNameNode.java:208)
        at org.apache.hadoop.hdfs.server.namenode.SecondaryNameNode.<init>(SecondaryNameNode.java:150)
        at org.apache.hadoop.hdfs.server.namenode.SecondaryNameNode.main(SecondaryNameNode.java:676)
19/05/20 22:24:49 INFO namenode.SecondaryNameNode: SHUTDOWN_MSG:
/************************************************************
SHUTDOWN_MSG: Shutting down SecondaryNameNode at chosun-VirtualBox/127.0.1.1
************************************************************/
chosun@chosun-VirtualBox:~$
```

>>> 보조네임노드를 이용해서 장애를 복구하려고 합니다.

>>> 우선 dfs.name.dir의 디렉터리에 메타 데이터가 없어야 하며, 대신 dfs.name.dir 디렉터리 자체는 존재해야 합니다.

>>> 보조네임노드의 메타데이터를 복사하고, -importCheckpoint옵션으로 네임노드를 실행시키면 됩니다.

>>> 우선 stop-all.sh를 사용해 하둡 데몬들을 종료시켰습니다.
chosun@chosun-VirtualBox:~$ stop-all.sh

stopping jobtracker

localhost: stopping tasktracker

stopping namenode

localhost: stopping datanode

localhost: stopping secondarynamenode

chosun@chosun-VirtualBox:~$

chosun@chosun-VirtualBox:~$ jps

24472 Jps

chosun@chosun-VirtualBox:~$
>>> cd 명령어를 사용해 dfs 디렉터리의 위치로 이동했습니다.

>>> rm - rf name 명령어를 사용해 네임노드의 메타데이터를 삭제하고 네임노드를 실행시켜봅니다.

>>> 중간에 /dfs/name does not exist라는 메시지가 출력되며 네임노드가 강제로 종료됩니다.
chosun@chosun-VirtualBox:~$ cd $HOME/hadoop-data/dfs

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ ls

data name namesecondary

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ rm -rf name

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ ls

data namesecondary

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ hadoop namenode

19/05/20 22:34:56 INFO namenode.NameNode: STARTUP_MSG:

/**

STARTUP_MSG: Starting NameNode

STARTUP_MSG: host = chosun-VirtualBox/127.0.1.1

STARTUP_MSG: args = []

STARTUP_MSG: version = 1.2.1

STARTUP_MSG: build = https://svn.apache.org/repos/asf/hadoop/common/branches/branch-1.2 -r 1503152; compiled by 'mattf' on Mon Jul 22 15:23:09 PDT 2013

STARTUP_MSG: java = 11.0.3

**/

19/05/20 22:34:56 INFO impl.MetricsConfig: loaded properties from hadoop-metrics2.properties

19/05/20 22:34:56 INFO impl.MetricsSourceAdapter: MBean for source MetricsSystem,sub=Stats registered.

19/05/20 22:34:56 INFO impl.MetricsSystemImpl: Scheduled snapshot period at 10 second(s).

19/05/20 22:34:56 INFO impl.MetricsSystemImpl: NameNode metrics system started

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

19/05/20 22:34:56 INFO impl.MetricsSourceAdapter: MBean for source ugi registered.

19/05/20 22:34:56 WARN impl.MetricsSystemImpl: Source name ugi already exists!

19/05/20 22:34:56 INFO impl.MetricsSourceAdapter: MBean for source jvm registered.

19/05/20 22:34:56 INFO impl.MetricsSourceAdapter: MBean for source NameNode registered.

19/05/20 22:34:56 INFO util.GSet: Computing capacity for map BlocksMap

19/05/20 22:34:56 INFO util.GSet: VM type   = 64-bit

19/05/20 22:34:56 INFO util.GSet: 2.0% max memory = 1048576000

19/05/20 22:34:56 INFO util.GSet: capacity   = 2^21 = 2097152 entries

19/05/20 22:34:56 INFO util.GSet: recommended=2097152, actual=2097152

19/05/20 22:34:56 INFO namenode.FSNamesystem: fsOwner=chosun

19/05/20 22:34:56 INFO namenode.FSNamesystem: supergroup=supergroup

19/05/20 22:34:56 INFO namenode.FSNamesystem: isPermissionEnabled=true

19/05/20 22:34:56 INFO namenode.FSNamesystem: dfs.block.invalidate.limit=100

19/05/20 22:34:56 INFO namenode.FSNamesystem: isAccessTokenEnabled=false accessKeyUpdateInterval=0 min(s), accessTokenLifetime=0 min(s)

19/05/20 22:34:56 INFO namenode.FSNamesystem: Registered FSNamesystemStateMBean and NameNodeMXBean

19/05/20 22:34:56 INFO namenode.FSEditLog: dfs.namenode.edits.toleration.length = 0

19/05/20 22:34:56 INFO namenode.NameNode: Caching file names occuring more than 10 times

19/05/20 22:34:56 INFO common.Storage: Storage directory /home/chosun/hadoop-data/dfs/name does not exist

19/05/20 22:34:56 ERROR namenode.FSNamesystem: FSNamesystem initialization failed.

org.apache.hadoop.hdfs.server.common.InconsistentFSStateException: Directory /home/chosun/hadoop-data/dfs/name is in an inconsistent state: storage directory does not exist or is not accessible.

 at org.apache.hadoop.hdfs.server.namenode.FSImage.recoverTransitionRead(FSImage.java:304)

 at org.apache.hadoop.hdfs.server.namenode.FSDirectory.loadFSImage(FSDirectory.java:104)

 at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.initialize(FSNamesystem.java:427)

 at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.<init>(FSNamesystem.java:395)

 at org.apache.hadoop.hdfs.server.namenode.NameNode.initialize(NameNode.java:299)

 at org.apache.hadoop.hdfs.server.namenode.NameNode.<init>(NameNode.java:569)

 at org.apache.hadoop.hdfs.server.namenode.NameNode.createNameNode(NameNode.java:1479)

 at org.apache.hadoop.hdfs.server.namenode.NameNode.main(NameNode.java:1488)

19/05/20 22:34:56 ERROR namenode.NameNode: org.apache.hadoop.hdfs.server.common.InconsistentFSStateException: Directory /home/chosun/hadoop-data/dfs/name is in an inconsistent state: storage directory does not exist or is not accessible.

 at org.apache.hadoop.hdfs.server.namenode.FSImage.recoverTransitionRead(FSImage.java:304)

 at org.apache.hadoop.hdfs.server.namenode.FSDirectory.loadFSImage(FSDirectory.java:104)

 at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.initialize(FSNamesystem.java:427)

 at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.<init>(FSNamesystem.java:395)

 at org.apache.hadoop.hdfs.server.namenode.NameNode.initialize(NameNode.java:299)

 at org.apache.hadoop.hdfs.server.namenode.NameNode.<init>(NameNode.java:569)

 at org.apache.hadoop.hdfs.server.namenode.NameNode.createNameNode(NameNode.java:1479)

 at org.apache.hadoop.hdfs.server.namenode.NameNode.main(NameNode.java:1488)

19/05/20 22:34:56 INFO namenode.NameNode: SHUTDOWN_MSG:

/**

SHUTDOWN_MSG: Shutting down NameNode at chosun-VirtualBox/127.0.1.1

**/

chosun@chosun-VirtualBox:~/hadoop-data/dfs$

/// *** ///

>>> 아래 명령어들을 실행시킬 때, 하둡 데몬들이 전부 실행되고 있어야 하지만, 위에서 네임노드를 삭제했으므로 명령어는 실행되지 않습니다.

>>> 그러므로 명령어의 사용법과 기능만 알아보고, 명령어의 실행은 네임노드가 복구된 다음 확인하겠습니다.

>>> fsck

>>> 파일 시스템의 상태를 확인하고 삭제할 수 있습니다.

>>> 파라미터로 /를 사용한 이유는, 반드시 상태를 확인해야 하는 경로가 필요하기 때문입니다.

/// *** ///

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ hadoop fsck /

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

19/05/20 22:35:14 ERROR security.UserGroupInformation: PriviledgedActionException as:chosun cause:java.net.ConnectException: 연결이 거부됨 (Connection refused)

Exception in thread "main" java.net.ConnectException: 연결이 거부됨 (Connection refused)

 at java.base/java.net.PlainSocketImpl.socketConnect(Native Method)

 at java.base/java.net.AbstractPlainSocketImpl.doConnect(AbstractPlainSocketImpl.java:399)

 at java.base/java.net.AbstractPlainSocketImpl.connectToAddress(AbstractPlainSocketImpl.java:240)

 at java.base/java.net.AbstractPlainSocketImpl.connect(AbstractPlainSocketImpl.java:224)

 at java.base/java.net.Socket.connect(Socket.java:591)

 at java.base/java.net.Socket.connect(Socket.java:540)

 at java.base/sun.net.NetworkClient.doConnect(NetworkClient.java:182)

 at java.base/sun.net.www.http.HttpClient.openServer(HttpClient.java:474)

 at java.base/sun.net.www.http.HttpClient.openServer(HttpClient.java:569)

 at java.base/sun.net.www.http.HttpClient.<init>(HttpClient.java:242)

 at java.base/sun.net.www.http.HttpClient.New(HttpClient.java:341)

 at java.base/sun.net.www.http.HttpClient.New(HttpClient.java:362)

```
        at java.base/sun.net.www.protocol.http.HttpURLConnection.getNewHttpClient(HttpURLConnection.java:1242)
        at java.base/sun.net.www.protocol.http.HttpURLConnection.plainConnect0(HttpURLConnection.java:1181)
        at java.base/sun.net.www.protocol.http.HttpURLConnection.plainConnect(HttpURLConnection.java:1075)
        at java.base/sun.net.www.protocol.http.HttpURLConnection.connect(HttpURLConnection.java:1009)
        at java.base/sun.net.www.protocol.http.HttpURLConnection.getInputStream0(HttpURLConnection.java:1581)
        at java.base/sun.net.www.protocol.http.HttpURLConnection.getInputStream(HttpURLConnection.java:1509)
        at org.apache.hadoop.hdfs.tools.DFSck$1.run(DFSck.java:142)
        at org.apache.hadoop.hdfs.tools.DFSck$1.run(DFSck.java:109)
        at java.base/java.security.AccessController.doPrivileged(Native Method)
        at java.base/javax.security.auth.Subject.doAs(Subject.java:423)
        at org.apache.hadoop.security.UserGroupInformation.doAs(UserGroupInformation.java:1190)
        at org.apache.hadoop.hdfs.tools.DFSck.run(DFSck.java:109)
        at org.apache.hadoop.util.ToolRunner.run(ToolRunner.java:65)
        at org.apache.hadoop.util.ToolRunner.run(ToolRunner.java:79)
        at org.apache.hadoop.hdfs.tools.DFSck.main(DFSck.java:183)
```
chosun@chosun-VirtualBox:~/hadoop-data/dfs$
/// ** ///
>>> report
>>> HDFS의 기본적인 정보와 상태를 출력합니다.
/// ** ///
chosun@chosun-VirtualBox:~/hadoop-data/dfs$ hadoop dfsadmin -report
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
19/05/20 22:35:31 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 0 time(s); retry policy is
RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)
19/05/20 22:35:32 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 1 time(s); retry policy is
RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)
19/05/20 22:35:33 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 2 time(s); retry policy is
RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)
19/05/20 22:35:34 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 3 time(s); retry policy is
RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)
19/05/20 22:35:35 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 4 time(s); retry policy is
RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)
19/05/20 22:35:36 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 5 time(s); retry policy is
RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)
19/05/20 22:35:37 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 6 time(s); retry policy is
RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)
19/05/20 22:35:38 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 7 time(s); retry policy is
RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)
19/05/20 22:35:39 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 8 time(s); retry policy is
RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)
19/05/20 22:35:40 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 9 time(s); retry policy is
RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)
report: Call to localhost/127.0.0.1:9000 failed on connection exception: java.net.ConnectException: 연결이 거부됨
chosun@chosun-VirtualBox:~/hadoop-data/dfs$
/// ** ///
>>> safemode
>>> 하둡을 재구동하면 로컬에 저장된 파일 시스템 이미지와 에디트 로그를 조회한 후 메모리에 있는 파일 시스템 이미지를 갱신합니다.
>>> 이 때, 데이터노드는 저장하고 있는 블록의 위치 정보를 네임노드에 전송하고, 네임노드는 메모리에 올라와 있는 파일 시스템 이미지와
>>> 데이터노드가 전송한 블록의 정보를 비교하는 작업을 수행합니다.
>>> 이 비교작업을 블록 리포팅이라고 하며, 블록 리포팅이 완료되기 전까지의 상태를 안전모드라고 합니다.
>>> 안전모드를 시작하기 위해 enter파라미터를 입력해서 안전모드를 실행시켰습니다.
/// ** ///
chosun@chosun-VirtualBox:~/hadoop-data/dfs$ hadoop dfsadmin -safemode enter
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

19/05/20 22:35:56 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 0 time(s); retry policy is RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)

19/05/20 22:35:57 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 1 time(s); retry policy is RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)

19/05/20 22:35:58 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 2 time(s); retry policy is RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)

19/05/20 22:35:59 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 3 time(s); retry policy is RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)

19/05/20 22:36:00 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 4 time(s); retry policy is RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)

19/05/20 22:36:01 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 5 time(s); retry policy is RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)

19/05/20 22:36:02 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 6 time(s); retry policy is RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)

19/05/20 22:36:03 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 7 time(s); retry policy is RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)

19/05/20 22:36:04 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 8 time(s); retry policy is RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)

19/05/20 22:36:05 INFO ipc.Client: Retrying connect to server: localhost/127.0.0.1:9000. Already tried 9 time(s); retry policy is RetryUpToMaximumCountWithFixedSleep(maxRetries=10, sleepTime=1 SECONDS)

safemode: Call to localhost/127.0.0.1:9000 failed on connection exception: java.net.ConnectException: 연결이 거부됨

chosun@chosun-VirtualBox:~/hadoop-data/dfs$
/// *** ///

>>> 위에서 dfs.name.dir 디렉터리의 메타데이터를 삭제하기위해 name 디렉터리를 통째로 삭제했습니다.

>>> 하지만 name 디렉터리 자체는 존재해야 하므로 name 디렉토리를 생성합니다.

>>> namesecondary의 내용물(보조네임노드의 메타데이터)을 namesecondary.tar.gz파일로 압축합니다.

/// *** ///

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ mkdir name

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ tar cvfz namesecondary.tar.gz namesecondary/

namesecondary/

namesecondary/current/

namesecondary/current/edits

namesecondary/current/fstime

namesecondary/current/VERSION

namesecondary/current/fsimage

namesecondary/image/

namesecondary/image/fsimage

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ tar xvfz namesecondary.tar.gz

namesecondary/

namesecondary/current/

namesecondary/current/edits

namesecondary/current/fstime

namesecondary/current/VERSION

namesecondary/current/fsimage

namesecondary/image/

namesecondary/image/fsimage

/// *** ///

>>> 보조네임노드에 저장된 체크포인트 파일을 이용해 네임노드를 실행하기 위해,

>>> importCheckpoint옵션을 사용해서 네임노드를 실행했습니다.

/// *** ///

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ hadoop namenode -importCheckpoint

19/05/20 22:39:10 INFO namenode.NameNode: STARTUP_MSG:

/***

STARTUP_MSG: Starting NameNode

STARTUP_MSG: host = chosun-VirtualBox/127.0.1.1

STARTUP_MSG: args = [-importCheckpoint]

STARTUP_MSG: version = 1.2.1

STARTUP_MSG: build = https://svn.apache.org/repos/asf/hadoop/common/branches/branch-1.2 -r 1503152; compiled by 'mattf' on

Mon Jul 22 15:23:09 PDT 2013

STARTUP_MSG: java = 11.0.3

***/

19/05/20 22:39:10 INFO impl.MetricsConfig: loaded properties from hadoop-metrics2.properties

19/05/20 22:39:10 INFO impl.MetricsSourceAdapter: MBean for source MetricsSystem,sub=Stats registered.

19/05/20 22:39:10 INFO impl.MetricsSystemImpl: Scheduled snapshot period at 10 second(s).

19/05/20 22:39:10 INFO impl.MetricsSystemImpl: NameNode metrics system started

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

19/05/20 22:39:10 INFO impl.MetricsSourceAdapter: MBean for source ugi registered.

19/05/20 22:39:10 WARN impl.MetricsSystemImpl: Source name ugi already exists!

19/05/20 22:39:10 INFO impl.MetricsSourceAdapter: MBean for source jvm registered.

19/05/20 22:39:10 INFO impl.MetricsSourceAdapter: MBean for source NameNode registered.

19/05/20 22:39:10 INFO util.GSet: Computing capacity for map BlocksMap

19/05/20 22:39:10 INFO util.GSet: VM type   = 64-bit

19/05/20 22:39:10 INFO util.GSet: 2.0% max memory = 1048576000

19/05/20 22:39:10 INFO util.GSet: capacity   = 2^21 = 2097152 entries

19/05/20 22:39:10 INFO util.GSet: recommended=2097152, actual=2097152

19/05/20 22:39:11 INFO namenode.FSNamesystem: fsOwner=chosun

19/05/20 22:39:11 INFO namenode.FSNamesystem: supergroup=supergroup

19/05/20 22:39:11 INFO namenode.FSNamesystem: isPermissionEnabled=true

19/05/20 22:39:11 INFO namenode.FSNamesystem: dfs.block.invalidate.limit=100

19/05/20 22:39:11 INFO namenode.FSNamesystem: isAccessTokenEnabled=false accessKeyUpdateInterval=0 min(s), accessTokenLifetime=0 min(s)

19/05/20 22:39:11 INFO namenode.FSNamesystem: Registered FSNamesystemStateMBean and NameNodeMXBean

19/05/20 22:39:11 INFO namenode.FSEditLog: dfs.namenode.edits.toleration.length = 0

19/05/20 22:39:11 INFO namenode.NameNode: Caching file names occuring more than 10 times

19/05/20 22:39:11 INFO common.Storage: Storage directory /home/chosun/hadoop-data/dfs/name is not formatted.

19/05/20 22:39:11 INFO common.Storage: Formatting ...

19/05/20 22:39:11 INFO common.Storage: Start loading image file /home/chosun/hadoop-data/dfs/namesecondary/current/fsimage

19/05/20 22:39:11 INFO common.Storage: Number of files = 146

19/05/20 22:39:11 INFO common.Storage: Number of files under construction = 0

19/05/20 22:39:11 INFO common.Storage: Image file /home/chosun/hadoop-data/dfs/namesecondary/current/fsimage of size 19743 bytes loaded in 0 seconds.

19/05/20 22:39:11 INFO namenode.FSEditLog: Start loading edits file /home/chosun/hadoop-data/dfs/namesecondary/current/edits

19/05/20 22:39:11 INFO namenode.FSEditLog: EOF of /home/chosun/hadoop-data/dfs/namesecondary/current/edits, reached end of edit log Number of transactions found: 0. Bytes read: 4

19/05/20 22:39:11 INFO namenode.FSEditLog: Start checking end of edit log (/home/chosun/hadoop-data/dfs/namesecondary/current/edits) ...

19/05/20 22:39:11 INFO namenode.FSEditLog: Checked the bytes after the end of edit log (/home/chosun/hadoop-data/dfs/namesecondary/current/edits):

19/05/20 22:39:11 INFO namenode.FSEditLog: Padding position = -1 (-1 means padding not found)

19/05/20 22:39:11 INFO namenode.FSEditLog: Edit log length   = 4

19/05/20 22:39:11 INFO namenode.FSEditLog: Read length   = 4

19/05/20 22:39:11 INFO namenode.FSEditLog: Corruption length = 0

19/05/20 22:39:11 INFO namenode.FSEditLog: Toleration length = 0 (= dfs.namenode.edits.toleration.length)

19/05/20 22:39:11 INFO namenode.FSEditLog: Summary: |---------- Read=4 ----------|-- Corrupt=0 --|-- Pad=0 --|

19/05/20 22:39:11 INFO namenode.FSEditLog: Edits file /home/chosun/hadoop-data/dfs/namesecondary/current/edits of size 4 edits # 0 loaded in 0 seconds.

19/05/20 22:39:11 INFO common.Storage: Image file /home/chosun/hadoop-data/dfs/name/current/fsimage of size 19743 bytes saved in 0 seconds.

19/05/20 22:39:11 INFO namenode.FSEditLog: closing edit log: position=4, editlog=/home/chosun/hadoop-data/dfs/name/current/edits

19/05/20 22:39:11 INFO namenode.FSEditLog: close success: truncate to 4, editlog=/home/chosun/hadoop-data/dfs/name/current/edits

19/05/20 22:39:11 INFO namenode.FSEditLog: Number of transactions: 0 Total time for transactions(ms): 0 Number of transactions batched in Syncs: 0 Number of syncs: 0 SyncTimes(ms): 0

19/05/20 22:39:11 INFO namenode.FSEditLog: closing edit log: position=4, editlog=/home/chosun/hadoop-data/dfs/name/current/edits

19/05/20 22:39:11 INFO namenode.FSEditLog: close success: truncate to 4, editlog=/home/chosun/hadoop-data/dfs/name/current/edits

19/05/20 22:39:11 INFO common.Storage: Image file /home/chosun/hadoop-data/dfs/name/current/fsimage of size 19743 bytes saved in 0 seconds.

19/05/20 22:39:11 INFO namenode.FSEditLog: closing edit log: position=4, editlog=/home/chosun/hadoop-data/dfs/name/current/edits

19/05/20 22:39:11 INFO namenode.FSEditLog: close success: truncate to 4, editlog=/home/chosun/hadoop-data/dfs/name/current/edits

19/05/20 22:39:11 INFO namenode.NameCache: initialized with 1 entries 29 lookups

19/05/20 22:39:11 INFO namenode.FSNamesystem: Finished loading FSImage in 250 msecs

19/05/20 22:39:11 INFO namenode.FSNamesystem: dfs.safemode.threshold.pct   = 0.9990000128746033

19/05/20 22:39:11 INFO namenode.FSNamesystem: dfs.namenode.safemode.min.datanodes = 0

19/05/20 22:39:11 INFO namenode.FSNamesystem: dfs.safemode.extension   = 30000

19/05/20 22:39:11 INFO namenode.FSNamesystem: Number of blocks excluded by safe block count: 0 total blocks: 111 and thus the safe blocks: 111

19/05/20 22:39:11 INFO hdfs.StateChange: STATE* Safe mode ON

The reported blocks is only 0 but the threshold is 0.9990 and the total blocks 111. Safe mode will be turned off automatically.

19/05/20 22:39:11 INFO util.HostsFileReader: Refreshing hosts (include/exclude) list

19/05/20 22:39:11 INFO impl.MetricsSourceAdapter: MBean for source FSNamesystemMetrics registered.

19/05/20 22:39:11 INFO ipc.Server: Starting SocketReader

19/05/20 22:39:11 INFO impl.MetricsSourceAdapter: MBean for source RpcDetailedActivityForPort9000 registered.

19/05/20 22:39:11 INFO impl.MetricsSourceAdapter: MBean for source RpcActivityForPort9000 registered.

19/05/20 22:39:11 INFO namenode.NameNode: Namenode up at: localhost/127.0.0.1:9000

19/05/20 22:39:11 INFO mortbay.log: Logging to org.slf4j.impl.Log4jLoggerAdapter(org.mortbay.log) via org.mortbay.log.Slf4jLog

19/05/20 22:39:11 INFO http.HttpServer: Added global filtersafety (class=org.apache.hadoop.http.HttpServer$QuotingInputFilter)

19/05/20 22:39:11 INFO http.HttpServer: dfs.webhdfs.enabled = false

19/05/20 22:39:11 INFO http.HttpServer: Port returned by webServer.getConnectors()[0].getLocalPort() before open() is -1. Opening the listener on 50070

19/05/20 22:39:11 INFO http.HttpServer: listener.getLocalPort() returned 50070 webServer.getConnectors()[0].getLocalPort() returned 50070

19/05/20 22:39:11 INFO http.HttpServer: Jetty bound to port 50070

19/05/20 22:39:11 INFO mortbay.log: jetty-6.1.26

19/05/20 22:39:11 INFO mortbay.log: Started SelectChannelConnector@0.0.0.0:50070

19/05/20 22:39:11 INFO namenode.NameNode: Web-server up at: 0.0.0.0:50070

19/05/20 22:39:11 INFO ipc.Server: IPC Server Responder: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server listener on 9000: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server handler 0 on 9000: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server handler 3 on 9000: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server handler 1 on 9000: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server handler 2 on 9000: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server handler 5 on 9000: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server handler 6 on 9000: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server handler 4 on 9000: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server handler 8 on 9000: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server handler 7 on 9000: starting

19/05/20 22:39:11 INFO ipc.Server: IPC Server handler 9 on 9000: starting

^C19/05/20 22:39:17 INFO namenode.NameNode: SHUTDOWN_MSG:

/***

SHUTDOWN_MSG: Shutting down NameNode at chosun-VirtualBox/127.0.1.1

***/

chosun@chosun-VirtualBox:~/hadoop-data/dfs$

/// ** ///

>>> 네임노드가 정상적으로 구동돼는 것을 확인했으므로, 네임노드 데몬은 ctrl+c로 강제중지 시킨 후, 전체 하둡 데몬을 실행시켰습니다.

>>> 실행중인 데몬의 목록에 namenode를 포함한 모든 데몬이 실행중임을 확인했습니다.

/// ** ///

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ start-all.sh

starting namenode, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-namenode-chosun-VirtualBox.out

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

localhost: starting datanode, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-datanode-chosun-VirtualBox.out

localhost: WARNING: An illegal reflective access operation has occurred

localhost: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/

hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

localhost: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

localhost: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

localhost: WARNING: All illegal access operations will be denied in a future release

localhost: starting secondarynamenode, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-secondarynamenode
-chosun-VirtualBox.out

localhost: WARNING: An illegal reflective access operation has occurred

localhost: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

localhost: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

localhost: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

localhost: WARNING: All illegal access operations will be denied in a future release

starting jobtracker, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-jobtracker-chosun-VirtualBox.out

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop
-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

localhost: starting tasktracker, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-tasktracker-chosun-VirtualBox.out

localhost: WARNING: An illegal reflective access operation has occurred

localhost: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

localhost: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

localhost: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

localhost: WARNING: All illegal access operations will be denied in a future release

chosun@chosun-VirtualBox:~/hadoop-data/dfs$

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ jps

25191 NameNode

25719 JobTracker

25929 TaskTracker

25403 DataNode

26012 Jps

25613 SecondaryNameNode

chosun@chosun-VirtualBox:~/hadoop-data/dfs$

/// ** ///

>>> 네임노드가 복구되었으므로, 위에서 확인하지 못했던 명령어를 실행시켰습니다.

>>> fsck

>>> The filesystem under path '/' is CORRUPT - 블록에 오류가 있습니다.

/// ** ///

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ hadoop fsck /

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

FSCK started by chosun from /127.0.0.1 for path / at Mon May 20 22:41:23 KST 2019

./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904032125_0001/job.jar:

Under replicated blk_-1090010636075514919_1296. Target Replicas is 10 but found 1 replica(s).

./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904032125_0002/job.jar:

Under replicated blk_-3719525797047479192_1297. Target Replicas is 10 but found 1 replica(s).

./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904032125_0003/job.jar:

Under replicated blk_-1311871005040155075_1298. Target Replicas is 10 but found 1 replica(s).

./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904032125_0004/job.jar:

Under replicated blk_-6623434726121362864_1300. Target Replicas is 10 but found 1 replica(s).

./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904081950_0001/job.jar:

Under replicated blk_-2169832601991170217_1455. Target Replicas is 10 but found 1 replica(s).

./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904081950_0002/job.jar:

Under replicated blk_4144659166172216991_1456. Target Replicas is 10 but found 1 replica(s).

./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904091610_0001/job.jar:

Under replicated blk_-3735530474630407437_1489. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904292047_0001/job.jar:
Under replicated blk_1076285169750200087_1515. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904292047_0002/job.jar:
Under replicated blk_-347741101941923751_1516. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904300033_0001/job.jar:
Under replicated blk_7141495105505128385_1684. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904300049_0001/job.jar:
Under replicated blk_-8198692494297481396_1698. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904300049_0005/job.jar:
Under replicated blk_4640574336630837040_1740. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201904300049_0010/job.jar:
Under replicated blk_-2997661411225096671_1796. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905151856_0006/job.jar:
Under replicated blk_-6054996045244365226_2226. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0002/job.jar:
Under replicated blk_1365400582810184181_2300. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0003/job.jar:
Under replicated blk_4915874732395421948_2301. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0004/job.jar:
Under replicated blk_-8001805095740063081_2302. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0005/job.jar:
Under replicated blk_7041331464599385192_2303. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0006/job.jar:
Under replicated blk_-4758369593191353909_2304. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0007/job.jar:
Under replicated blk_-5930658114415407429_2305. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0008/job.jar:
Under replicated blk_-7761563380879455767_2306. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0009/job.jar:
Under replicated blk_-1070062150889721698_2307. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0010/job.jar:
Under replicated blk_-6894392950034941098_2308. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0011/job.jar:
Under replicated blk_2813701596619728962_2309. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0012/job.jar:
Under replicated blk_4656990817334001929_2310. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0013/job.jar:
Under replicated blk_-697032474042123389_2311. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0014/job.jar:
Under replicated blk_-3363350135993659061_2312. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0015/job.jar:
Under replicated blk_-173232979229683637_2313. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/staging/chosun/.staging/job_201905152352_0017/job.jar:
Under replicated blk_8668584693188325528_2325. Target Replicas is 10 but found 1 replica(s).
./home/chosun/hadoop-data/mapred/system/jobtracker.info: CORRUPT block blk_-3459344386436534677
/home/chosun/hadoop-data/mapred/system/jobtracker.info: MISSING 1 blocks of total size 4 B...
Status: CORRUPT
 Total size: 3003436211 B
 Total dirs: 66
 Total files: 80
 Total blocks (validated):   111 (avg. block size 27057983 B)
  ****
  CORRUPT FILES: 1
  MISSING BLOCKS: 1
  MISSING SIZE: 4 B
  CORRUPT BLOCKS: 1
  ****
 Minimally replicated blocks: 110 (99.0991 %)
 Over-replicated blocks: 0 (0.0 %)
 Under-replicated blocks: 29 (26.126125 %)

Mis-replicated blocks:	0 (0.0 %)	
Default replication factor:	1	
Average block replication:	0.990991	
Corrupt blocks:	1	
Missing replicas:	261 (237.27272 %)	
Number of data-nodes:	1	
Number of racks:	1	

FSCK ended at Mon May 20 22:41:23 KST 2019 in 38 milliseconds

The filesystem under path '/' is CORRUPT

chosun@chosun-VirtualBox:~/hadoop-data/dfs$

/// ** ///

>>> 우선 블록에 오류가 있으므로 블록을 찾아야하지만, 중요한 데이터는 없으므로 빠른 복구를 위해

>>> hdfs에 저장된 모든 실습 데이터들을 삭제했습니다. (.../hadoop-data/dfs/data)

>>> 모든 하둡 데몬을 중지시키고 나서 네임노드를 다시 포맷해주었습니다.

>>> 다시 하둡 데몬들을 실행시킨 다음 fsck명령어를 실행시켰더니 정상적으로 실행됨을 확인했습니다.

/// ** ///

chosun@chosun-VirtualBox:~$ rm -rf hadoop-data/dfs/data

chosun@chosun-VirtualBox:~$ stop-all.sh

stopping jobtracker

localhost: stopping tasktracker

no namenode to stop

localhost: stopping datanode

localhost: stopping secondarynamenode

chosun@chosun-VirtualBox:~$ hadoop namenode -format

19/05/21 19:12:00 INFO namenode.NameNode: STARTUP_MSG:

/**

STARTUP_MSG: Starting NameNode

STARTUP_MSG: host = chosun-VirtualBox/127.0.1.1

STARTUP_MSG: args = [-format]

STARTUP_MSG: version = 1.2.1

STARTUP_MSG: build = https://svn.apache.org/repos/asf/hadoop/common/branches/branch-1.2 -r 1503152; compiled by 'mattf' on Mon Jul 22 15:23:09 PDT 2013

STARTUP_MSG: java = 11.0.3

**/

Re-format filesystem in /home/chosun/hadoop-data/dfs/name ? (Y or N) Y

19/05/21 19:12:02 INFO util.GSet: Computing capacity for map BlocksMap

19/05/21 19:12:02 INFO util.GSet: VM type   = 64-bit

19/05/21 19:12:02 INFO util.GSet: 2.0% max memory = 1048576000

19/05/21 19:12:02 INFO util.GSet: capacity   = 2^21 = 2097152 entries

19/05/21 19:12:02 INFO util.GSet: recommended=2097152, actual=2097152

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

19/05/21 19:12:02 INFO namenode.FSNamesystem: fsOwner=chosun

19/05/21 19:12:02 INFO namenode.FSNamesystem: supergroup=supergroup

19/05/21 19:12:02 INFO namenode.FSNamesystem: isPermissionEnabled=true

19/05/21 19:12:02 INFO namenode.FSNamesystem: dfs.block.invalidate.limit=100

19/05/21 19:12:02 INFO namenode.FSNamesystem: isAccessTokenEnabled=false accessKeyUpdateInterval=0 min(s), accessTokenLifetime=0 min(s)

19/05/21 19:12:02 INFO namenode.FSEditLog: dfs.namenode.edits.toleration.length = 0

19/05/21 19:12:02 INFO namenode.NameNode: Caching file names occuring more than 10 times

19/05/21 19:12:02 INFO common.Storage: Image file /home/chosun/hadoop-data/dfs/name/current/fsimage of size 112 bytes saved in 0 seconds.

19/05/21 19:12:02 INFO namenode.FSEditLog: closing edit log: position=4, editlog=/home/chosun/hadoop-data/dfs/name/current/edits

19/05/21 19:12:02 INFO namenode.FSEditLog: close success: truncate to 4, editlog=/home/chosun/hadoop-data/dfs/name/current/edits

19/05/21 19:12:02 INFO common.Storage: Storage directory /home/chosun/hadoop-data/dfs/name has been successfully formatted.

19/05/21 19:12:02 INFO namenode.NameNode: SHUTDOWN_MSG:

/**

SHUTDOWN_MSG: Shutting down NameNode at chosun-VirtualBox/127.0.1.1

***/

chosun@chosun-VirtualBox:~$ start-all.sh

starting namenode, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-namenode-chosun-VirtualBox.out

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

localhost: starting datanode, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-datanode-chosun-VirtualBox.out

localhost: WARNING: An illegal reflective access operation has occurred

localhost: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

localhost: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

localhost: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

localhost: WARNING: All illegal access operations will be denied in a future release

localhost: starting secondarynamenode, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-secondarynamenode-chosun-VirtualBox.out

localhost: WARNING: An illegal reflective access operation has occurred

localhost: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

localhost: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

localhost: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

localhost: WARNING: All illegal access operations will be denied in a future release

starting jobtracker, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-jobtracker-chosun-VirtualBox.out

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

localhost: starting tasktracker, logging to /home/chosun/hadoop-1.2.1/libexec/../logs/hadoop-chosun-tasktracker-chosun-VirtualBox.out

localhost: WARNING: An illegal reflective access operation has occurred

localhost: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

localhost: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

localhost: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

localhost: WARNING: All illegal access operations will be denied in a future release

chosun@chosun-VirtualBox:~$ jps

17986 NameNode

18515 JobTracker

18199 DataNode

18409 SecondaryNameNode

18745 TaskTracker

18829 Jps

/// *** ///

>>> The filesystem under path '/' is HEALTHY 와 같이 정상적으로 fsck명령어가 실행됨을 확인했습니다.

/// *** ///

chosun@chosun-VirtualBox:~$ hadoop fsck /

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

FSCK started by chosun from /127.0.0.1 for path / at Tue May 21 19:12:38 KST 2019

.Status: HEALTHY

 Total size: 4 B

 Total dirs: 6

 Total files: 1

Total blocks (validated):   1 (avg. block size 4 B)
Minimally replicated blocks: 1 (100.0 %)
Over-replicated blocks: 0 (0.0 %)
Under-replicated blocks: 0 (0.0 %)
Mis-replicated blocks: 0 (0.0 %)
Default replication factor: 1
Average block replication: 1.0
Corrupt blocks: 0
Missing replicas: 0 (0.0 %)
Number of data-nodes: 1
Number of racks: 1
FSCK ended at Tue May 21 19:12:38 KST 2019 in 3 milliseconds
The filesystem under path '/' is HEALTHY
chosun@chosun-VirtualBox:~$
/// ** ///
>>> report
>>> 출력결과 위에서부터 HDFS 전체 스토리지 용량, 스토리지 사용률, 오류 블록 정보,
>>> HDFS를 구성하는 각 데이터노드가 블록을 얼마나 사용하고, 데이터노드가 정상적으로 구동돼 있는지 알려줍니다.
>>> Safe mode is ON 로그가 정상적으로 출력되었습니다.
/// ** ///
chosun@chosun-VirtualBox:~/hadoop-data/dfs$ hadoop dfsadmin -report
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
Safe mode is ON
Configured Capacity: 52573995008 (48.96 GB)
Present Capacity: 36891672576 (34.36 GB)
DFS Remaining: 33863774208 (31.54 GB)
DFS Used: 3027898368 (2.82 GB)
DFS Used%: 8.21%
Under replicated blocks: 0
Blocks with corrupt replicas: 0
Missing blocks: 0

Datanodes available: 1 (1 total, 0 dead)
Name: 127.0.0.1:50010
Decommission Status : Normal
Configured Capacity: 52573995008 (48.96 GB)
DFS Used: 3027898368 (2.82 GB)
Non DFS Used: 15682322432 (14.61 GB)
DFS Remaining: 33863774208(31.54 GB)
DFS Used%: 5.76%
DFS Remaining%: 64.41%
Last contact: Mon May 20 22:41:31 KST 2019
chosun@chosun-VirtualBox:~/hadoop-data/dfs$
/// ** ///
>>> safemode
>>> 역시 정상적으로 Safe mode is ON 로그가 출력됨을 확인했습니다.
/// ** ///
chosun@chosun-VirtualBox:~/hadoop-data/dfs$ hadoop dfsadmin -safemode enter
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/
hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
Safe mode is ON
chosun@chosun-VirtualBox:~/hadoop-data/dfs$

/// ** ///

>>> 보조네임노드를 이용해서 장애를 복구한 후, 네임노드가 정상적으로 실행됨을 확인했습니다.

/// ** ///

chosun@chosun-VirtualBox:~/hadoop-data/dfs$ hadoop namenode

19/05/20 22:41:45 INFO namenode.NameNode: STARTUP_MSG:

/**

STARTUP_MSG: Starting NameNode

STARTUP_MSG: host = chosun-VirtualBox/127.0.1.1

STARTUP_MSG: args = []

STARTUP_MSG: version = 1.2.1

STARTUP_MSG: build = https://svn.apache.org/repos/asf/hadoop/common/branches/branch-1.2 -r 1503152; compiled by 'mattf' on Mon Jul 22 15:23:09 PDT 2013

STARTUP_MSG: java = 11.0.3

**/

19/05/20 22:41:46 INFO impl.MetricsConfig: loaded properties from hadoop-metrics2.properties

19/05/20 22:41:46 INFO impl.MetricsSourceAdapter: MBean for source MetricsSystem,sub=Stats registered.

19/05/20 22:41:46 INFO impl.MetricsSystemImpl: Scheduled snapshot period at 10 second(s).

19/05/20 22:41:46 INFO impl.MetricsSystemImpl: NameNode metrics system started

WARNING: An illegal reflective access operation has occurred

WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/home/chosun/hadoop-1.2.1/hadoop-core-1.2.1.jar) to method sun.security.krb5.Config.getInstance()

WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil

WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations

WARNING: All illegal access operations will be denied in a future release

19/05/20 22:41:46 INFO impl.MetricsSourceAdapter: MBean for source ugi registered.

19/05/20 22:41:46 WARN impl.MetricsSystemImpl: Source name ugi already exists!

19/05/20 22:41:46 INFO impl.MetricsSourceAdapter: MBean for source jvm registered.

19/05/20 22:41:46 INFO impl.MetricsSourceAdapter: MBean for source NameNode registered.

19/05/20 22:41:46 INFO util.GSet: Computing capacity for map BlocksMap

19/05/20 22:41:46 INFO util.GSet: VM type   = 64-bit

19/05/20 22:41:46 INFO util.GSet: 2.0% max memory = 1048576000

19/05/20 22:41:46 INFO util.GSet: capacity   = 2^21 = 2097152 entries

19/05/20 22:41:46 INFO util.GSet: recommended=2097152, actual=2097152

19/05/20 22:41:46 INFO namenode.FSNamesystem: fsOwner=chosun

19/05/20 22:41:46 INFO namenode.FSNamesystem: supergroup=supergroup

19/05/20 22:41:46 INFO namenode.FSNamesystem: isPermissionEnabled=true

19/05/20 22:41:46 INFO namenode.FSNamesystem: dfs.block.invalidate.limit=100

19/05/20 22:41:46 INFO namenode.FSNamesystem: isAccessTokenEnabled=false accessKeyUpdateInterval=0 min(s), accessTokenLifetime=0 min(s)

19/05/20 22:41:46 INFO namenode.FSNamesystem: Registered FSNamesystemStateMBean and NameNodeMXBean

19/05/20 22:41:46 INFO namenode.FSEditLog: dfs.namenode.edits.toleration.length = 0

19/05/20 22:41:46 INFO namenode.NameNode: Caching file names occuring more than 10 times

19/05/20 22:41:46 INFO common.Storage: Cannot lock storage /home/chosun/hadoop-data/dfs/name. The directory is already locked.

19/05/20 22:41:46 ERROR namenode.FSNamesystem: FSNamesystem initialization failed.

java.io.IOException: Cannot lock storage /home/chosun/hadoop-data/dfs/name. The directory is already locked.

        at org.apache.hadoop.hdfs.server.common.Storage$StorageDirectory.lock(Storage.java:599)

        at org.apache.hadoop.hdfs.server.common.Storage$StorageDirectory.analyzeStorage(Storage.java:452)

        at org.apache.hadoop.hdfs.server.namenode.FSImage.recoverTransitionRead(FSImage.java:299)

        at org.apache.hadoop.hdfs.server.namenode.FSDirectory.loadFSImage(FSDirectory.java:104)

        at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.initialize(FSNamesystem.java:427)

        at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.<init>(FSNamesystem.java:395)

        at org.apache.hadoop.hdfs.server.namenode.NameNode.initialize(NameNode.java:299)

        at org.apache.hadoop.hdfs.server.namenode.NameNode.<init>(NameNode.java:569)

        at org.apache.hadoop.hdfs.server.namenode.NameNode.createNameNode(NameNode.java:1479)

        at org.apache.hadoop.hdfs.server.namenode.NameNode.main(NameNode.java:1488)

19/05/20 22:41:46 ERROR namenode.NameNode: java.io.IOException: Cannot lock storage /home/chosun/hadoop-data/dfs/name. The directory is already locked.

        at org.apache.hadoop.hdfs.server.common.Storage$StorageDirectory.lock(Storage.java:599)

        at org.apache.hadoop.hdfs.server.common.Storage$StorageDirectory.analyzeStorage(Storage.java:452)

        at org.apache.hadoop.hdfs.server.namenode.FSImage.recoverTransitionRead(FSImage.java:299)

        at org.apache.hadoop.hdfs.server.namenode.FSDirectory.loadFSImage(FSDirectory.java:104)

```
        at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.initialize(FSNamesystem.java:427)
        at org.apache.hadoop.hdfs.server.namenode.FSNamesystem.<init>(FSNamesystem.java:395)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.initialize(NameNode.java:299)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.<init>(NameNode.java:569)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.createNameNode(NameNode.java:1479)
        at org.apache.hadoop.hdfs.server.namenode.NameNode.main(NameNode.java:1488)
19/05/20 22:41:46 INFO namenode.NameNode: SHUTDOWN_MSG:
/************************************************************
SHUTDOWN_MSG: Shutting down NameNode at chosun-VirtualBox/127.0.1.1
************************************************************/
chosun@chosun-VirtualBox:~/hadoop-data/dfs$
```