Exp No: 9 **Date:**

HADOOP

SET UP A SINGLE HADOOP CLUSTER AND SHOW THE PROCESS USING WEB UI

AIM:

To set-up one node Hadoop cluster.

PROCEDURE:

1. System Update
2. Install Java
3. Add a dedicated Hadoop user
4. Install SSH and setup SSH certificates
5. Check if SSH works
6. Install Hadoop
7. Modify Hadoop config files
8. Format Hadoop filesystem
9. Start Hadoop
10. Check Hadoop through web UI
11. Stop Hadoop

THEORY

Hadoop is an Apache open source framework written in java that allows distributed processing of large datasets across clusters of computers using simple programming models. A Hadoop frame-worked application works in an environment that provides distributed storage and computation across clusters of computers. Hadoop is designed to scale up from a single server to thousands of machines, each offering local computation and storage.

HADOOP ARCHITECTURE

Hadoop framework includes following four modules:

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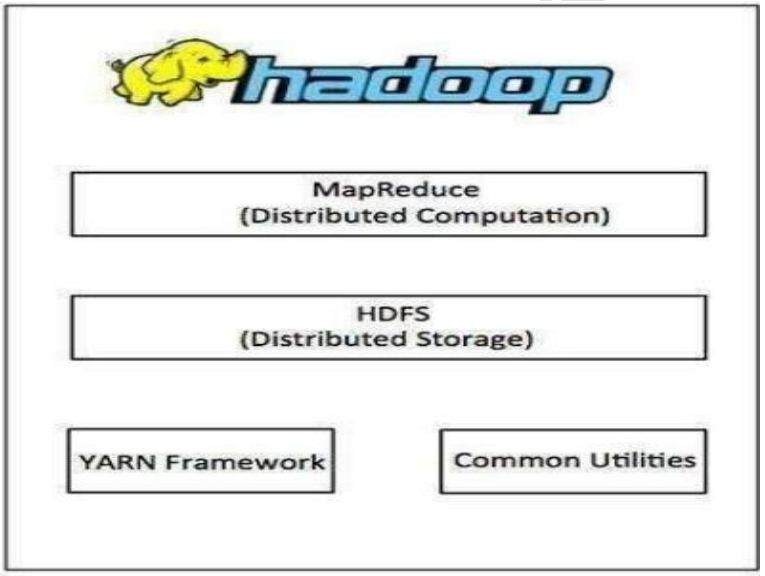
Hadoop Common: These are Java libraries and utilities required by other Hadoop modules. These libraries provide filesystem and OS level abstractions and contain the necessary Java files and scripts required to start Hadoop.

Hadoop YARN: This is a framework for job scheduling and cluster resource management.

Hadoop Distributed File System (HDFS): A distributed file system that provides high-throughput access to application data.

Hadoop MapReduce: This is a YARN-based system for parallel processing of large data sets.

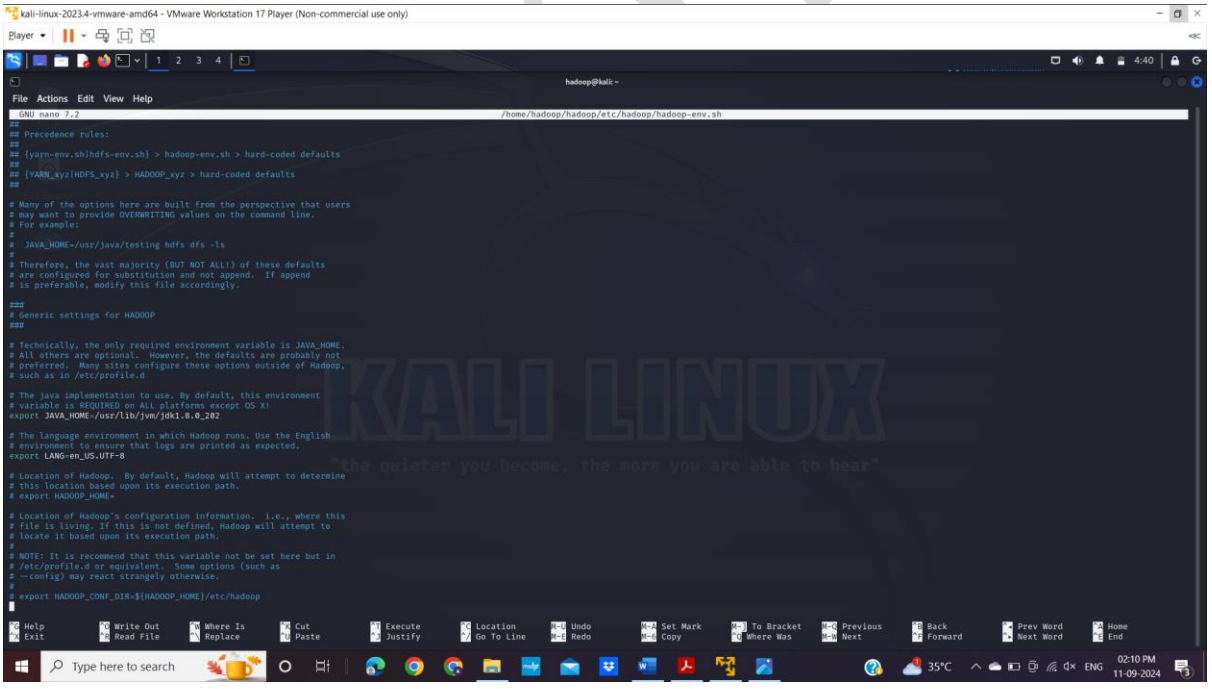
We can use following diagram to depict these four components available in Hadoop framework.



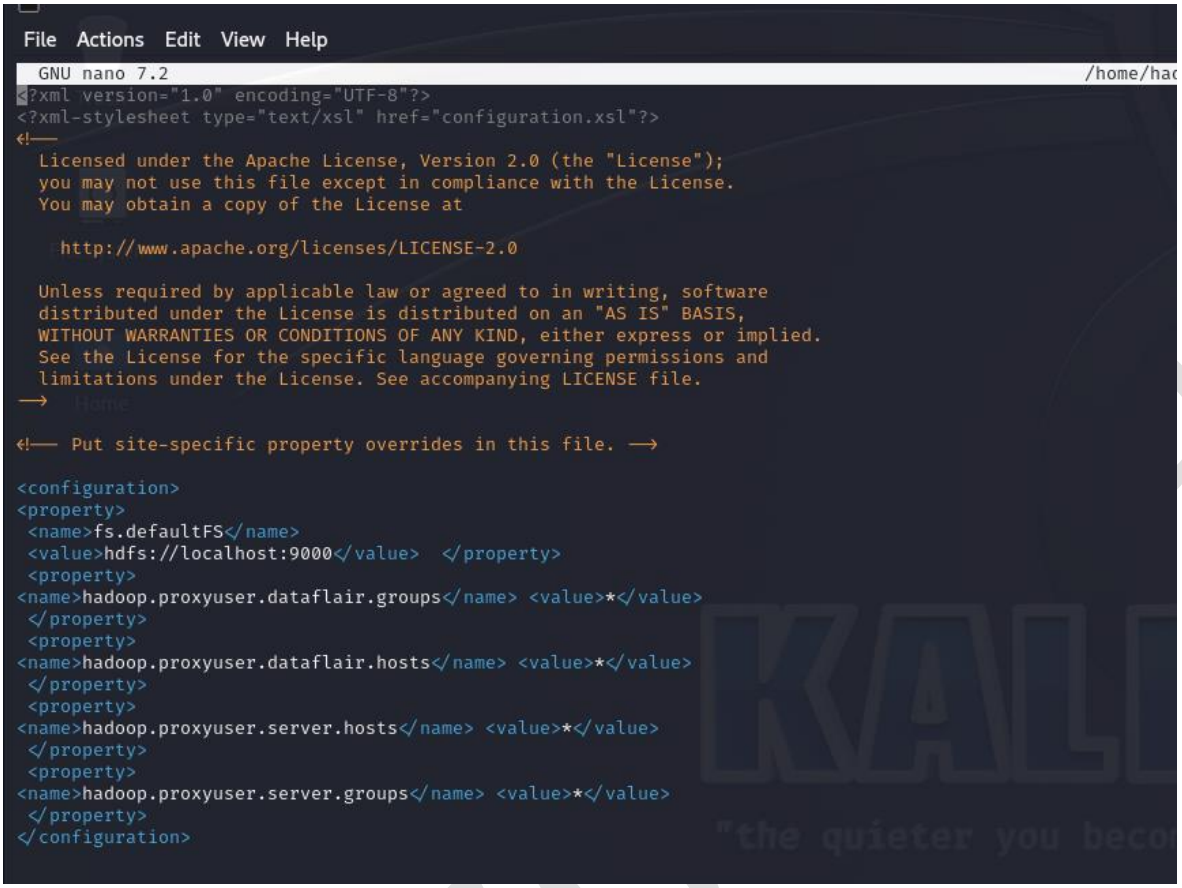
PROCEDURE

$ nano ~/.bashrc

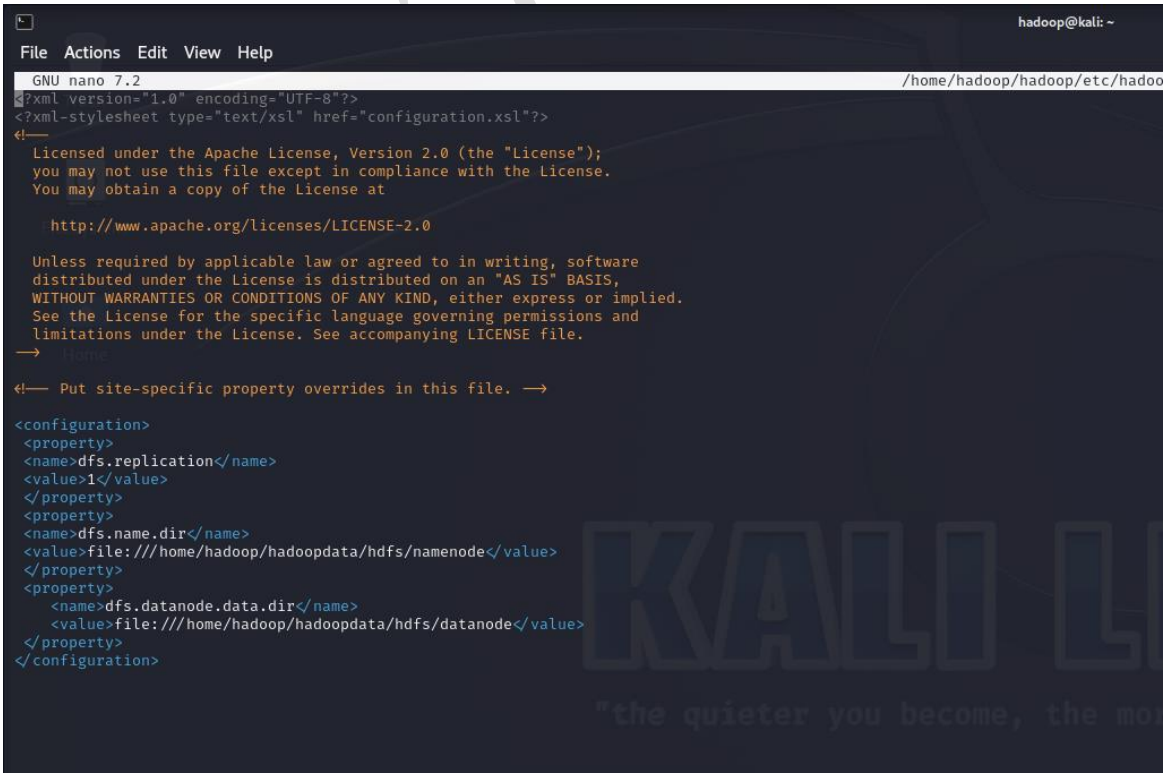
$ nano $HADOOP_HOME/etc/hadoop/hadoop-env.sh



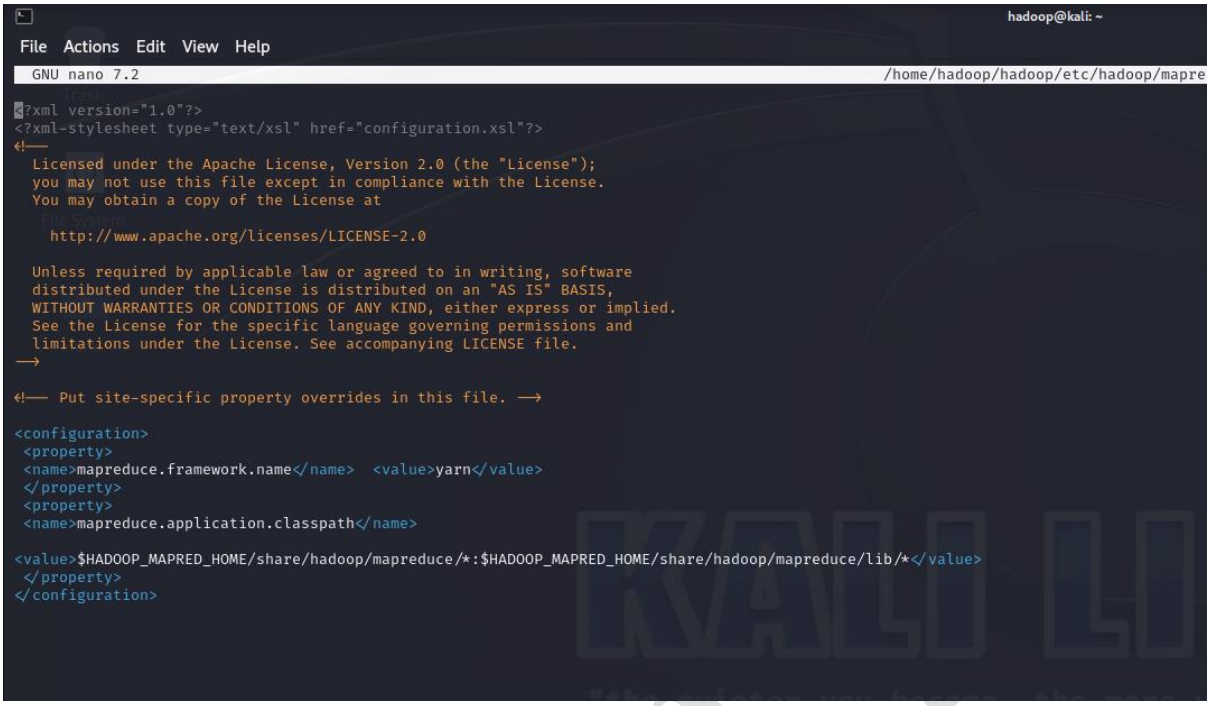
$nano $HADOOP_HOME/etc/hadoop/core-site.xml



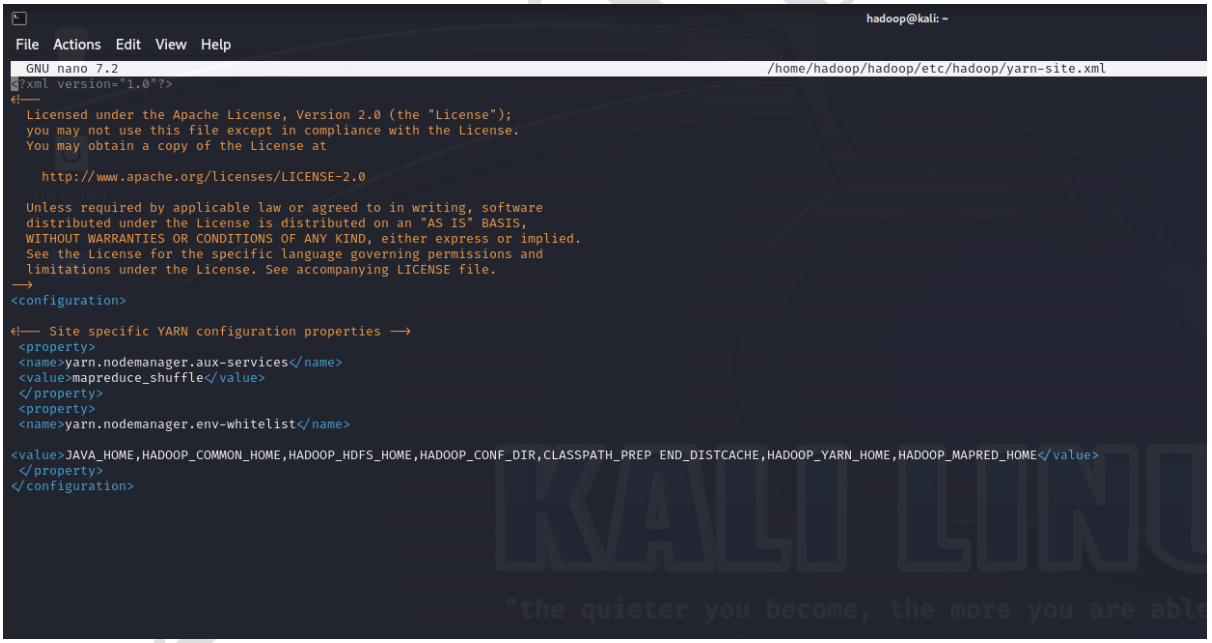
$nano $HADOOP_HOME/etc/hadoop/hdfs-site.xml



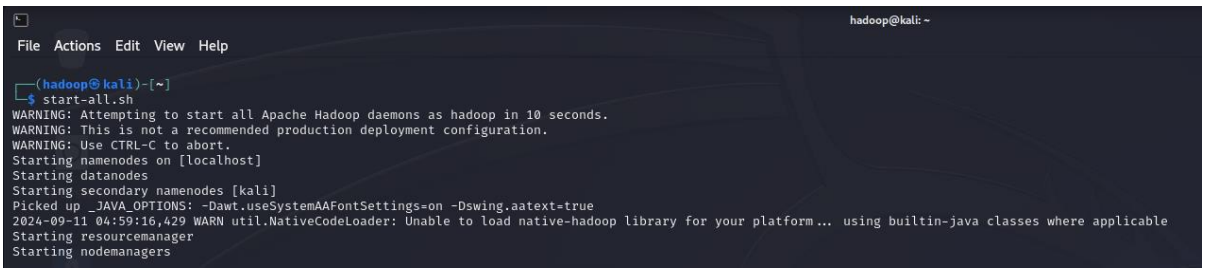
$nano $HADOOP_HOME/etc/hadoop/mapred-site.xml



$nano $HADOOP_HOME/etc/hadoop/yarn-site.xml



$ start-all.sh

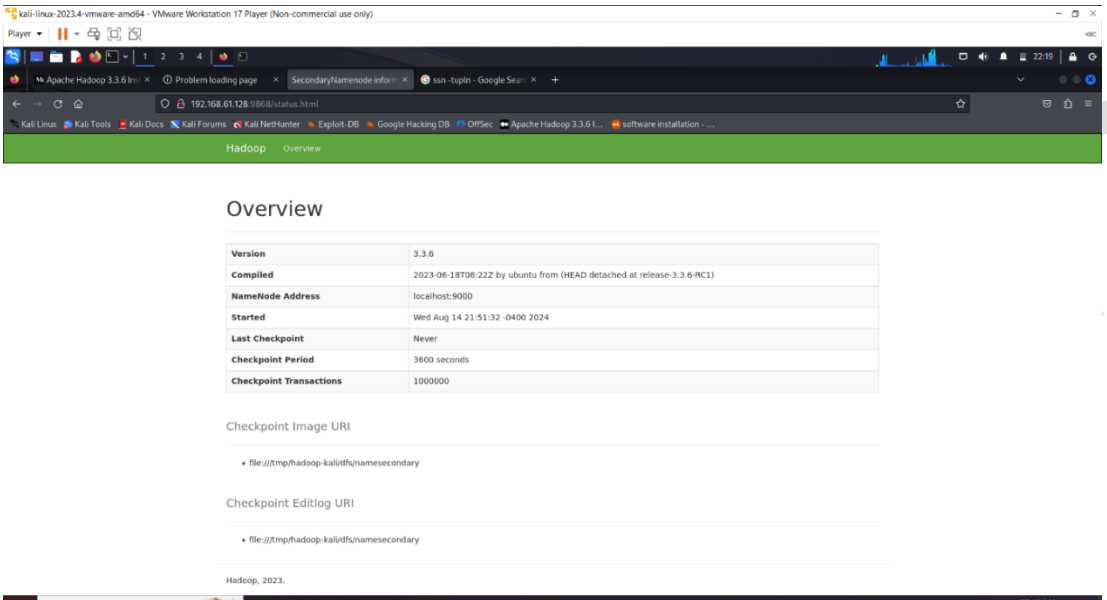


$ jps

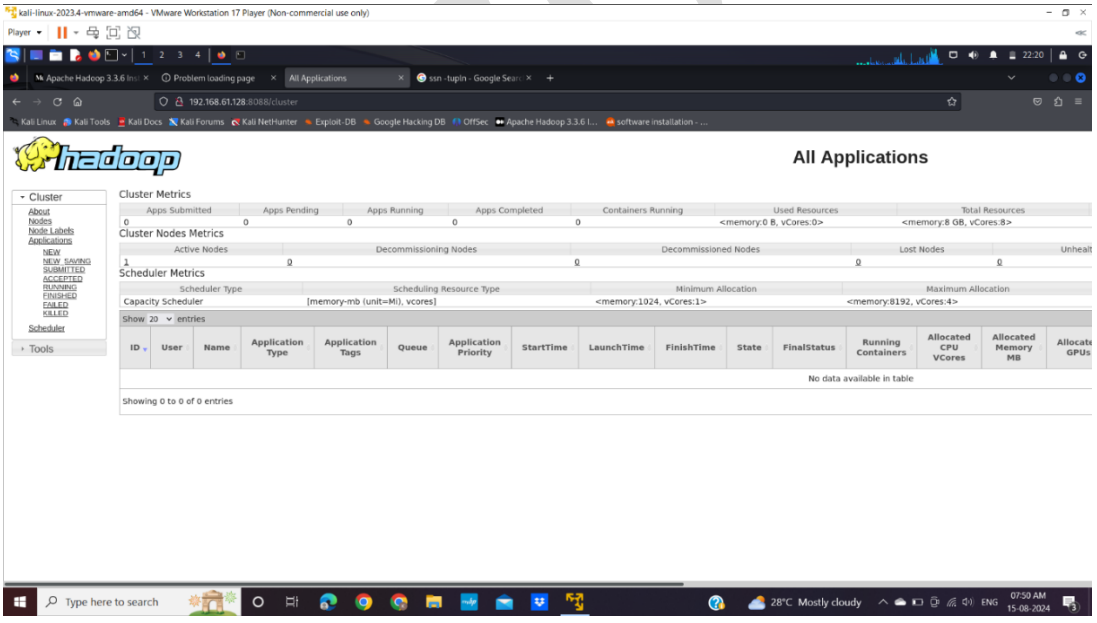
```
┌──(hadoop㉿kali)-[~]
└─$ jps
Picked up _JAVA_OPTIONS: -Dawt.useSystemAAFontSettings=on -Dswing.aatext=true
14436 NodeManager
16772 Jps
13830 SecondaryNameNode
14311 ResourceManager
13597 DataNode
13471 NameNode

┌──(hadoop㉿kali)-[~]
└─$
```

localhost:9870



localhost:8088



RESULT:

Thus, Hadoop has been successfully installed.