

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

### AIM:

To set up a single hadoop cluster and show the process using web UI.

### PROCEDURE:

**1. Install Java 8:** Download Java 8 from the link:

<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

- a. Set environmental variables:
  - i. User variable:
    - Variable: JAVA\_HOME
    - Value: C:/java
  - ii. System variable:
    - Variable: PATH
    - Value: C:/java/bin
- b. Check on cmd, see below:



```
Command Prompt
Microsoft Windows [Version 10.0.19045.4780]
(c) Microsoft Corporation. All rights reserved.

C:\Users\user>cd \

C:\>java -version
java version "1.8.0_202"
Java(TM) SE Runtime Environment (build 1.8.0_202-b08)
Java HotSpot(TM) 64-Bit Server VM (build 25.202-b08, mixed mode)

C:\>
```

**2. Download Hadoop-3.3.6:** download Hadoop 3.3.6 from the link:

<http://www.apache.org/dyn/closer.cgi/hadoop/common/hadoop-3.3.6/hadoop-3.3.6.tar.gz>

- a. Put extracted Hadoop-3.3.6 files into C drive. Note that do not put these extracted files into Cdrive, where you installed your Windows.
- b. **Download “hadoop-common-3.3.6-bin-master”** from the link: <https://github.com/amihalik/hadoop-common-3.3.6-bin/tree/master/bin>. You will see 11 filesthere. Paste all these files into the “bin” folder of Hadoop-3.3.6.
- c. Create a “data” folder inside Hadoop-3.3.6, and also create two more folders in the “data” folderas “data” and “name.”
- d. Create a folder to store temporary data during execution of a project, such as “D:/hadoop/temp.”
- e. Create a log folder, such as “D:/hadoop/userlog”
- f. Go to Hadoop-3.3.6 →etc → Hadoop and edit four files:
  - i. core-site.xml
  - ii. hdfs-site.xml
  - iii. mapred-site.xml
  - iv. yarn-site.xml

**core-site.xml:**

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<configuration>
<property>
  <name>fs.defaultFS</name>
  <value>hdfs://localhost:9000</value>
</property>
</configuration>
```

**hdfs-site.xml:**

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<configuration>
  <property>
    <name>dfs.replication</name>
    <value>1</value>
  </property>
  <property>
    <name>dfs.namenode.name.dir</name>
    <value>file:///C:/hadoop-3.3.6/data/namenode</value>
  </property>
  <property>
    <name>dfs.datanode.data.dir</name>
    <value>file:///C:/hadoop-3.3.6/data/datanode</value>
  </property>
</configuration>
```

**mapred-site.xml:**

```
<?xml version="1.0"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<configuration>
<property>
  <name>mapreduce.framework.name</name>
  <value>yarn</value>
</property>
</configuration>
```

### yarn-site.xml:

```
<?xml version="1.0"?>
<configuration>
  <property>
    <name>yarn.nodemanager.aux-services</name>
    <value>mapreduce_shuffle</value>
  </property>
</configuration>
```

- g. Go to the location: “Hadoop-3.3.6→etc→hadoop,” and edit “hadoop-env.cmd” by writingset  
JAVA\_HOME=C:/java/jdk1.8.0\_202
- h. Set environmental variables: Do: My computer → Properties → Advance  
system settings →  
Advanced → Environmental variables
  - i. User variables:
    - Variable: HADOOP\_HOME
    - Value: C:/hadoop-3.3.6
  - ii. System variable
    - Variable: Path
    - Value: C:/hadoop-3.3.6/bin  
C:/hadoop-3.3.6/sbin  
C:/hadoop-3.3.6/share/hadoop/common/\*  
C:/hadoop-3.3.6/share/hadoop/hdfs  
C:/hadoop-3.3.6/share/hadoop/hdfs/lib/\*  
C:/hadoop-3.3.6/share/hadoop/hdfs/\*  
C:/hadoop-3.3.6/share/hadoop/yarn/lib/\*  
C:/hadoop-3.3.6/share/hadoop/yarn/\*  
C:/hadoop-3.3.6/share/hadoop/mapreduce/lib/\*  
C:/hadoop-3.3.6/share/hadoop/mapreduce/\*  
C:/hadoop-3.3.6/share/hadoop/common/lib/\*
- i. Check on cmd; see below.

```
C:\Windows\System32>hadoop version
Hadoop 3.3.6
Source code repository https://github.com/apache/hadoop.git -r 1be78238728da9266a4f88195058f08fd012bf9c
Compiled by ubuntu on 2023-06-18T08:22Z
Compiled on platform linux-x86_64
Compiled with protoc 3.7.1
From source with checksum 5652179ad55f76cb287d9c633bb53bbd
This command was run using /C:/hadoop-3.3.6/share/hadoop/common/hadoop-common-3.3.6.jar
```

- j. **Format name-node:** On cmd go to the location “Hadoop-2.6.0→bin” by  
writing on cmd “cdhadoop-2.6.0.\bin” and then “hdfs namenode –format”
- k. Start Hadoop. Go to the location: “D:\hadoop-2.6.0\sbin.” Run the following  
files as administrator “start-all.cmd”.
- l. Go to your web browser and search “localhost:9870” to access Hadoop  
NameNode. For Resource Manager, search “localhost:8088”.



Namednode information

localhost:9070/dfs/health.html#tab=overview

Hadoop Overview Datanodes Datanode Volume Failures Snapshot Startup Progress Utilities

## Overview 'localhost:9000' (✓active)

Started:	Sun Sep 08 00:06:16 +0530 2024
Version:	3.3.6, r1be78238726da8296a4f88195058f08fd012bf9c
Compiled:	Sun Jun 18 13:52:00 +0530 2023 by ubuntu from (HEAD detached at release-3.3.6-RC1)
Cluster ID:	CID-50e55097-947b-42ab-ac22-401506263472
Block Pool ID:	BP-1769900285-192.168.56.1-1724916758896

## Summary


Security is off.

Safemode is off.

75 files and directories, 27 blocks (27 replicated blocks, 0 erasure coded block groups) = 102 total filesystem object(s).

All Applications

localhost:8080/cluster

 All App

Cluster

- About
- Nodes
- Node Labels
- Applications
- NEW
- NEW
- SAVED
- SUBMITTED
- ACCEPTED
- RUNNING
- FINISHED
- FAILED
- KILLED
- Scheduler

Tools

### Cluster Metrics

Apps Submitted	Apps Pending	Apps Running	Apps Completed	Containers Running	Used Resources
0	0	0	0	0	memory 0 B, vCores 0

### Cluster Nodes Metrics

Active Nodes	Decommissioning Nodes	Decommissioned Nodes
1	0	0

### Scheduler Metrics

Scheduler Type	Scheduling Resource Type	Minimum Allocation
Capacity Scheduler	[memory mb (unit-MB), vcores]	<memory 1024, vCores 1>

Show 20 entries

ID	User	Name	Application Type	Application Tags	Queue	Application Priority	StartTime	LaunchTime	FinishTime	State	FinalStatus
No data											

Showing 0 to 0 of 0 entries

## RESULT:

The set up of a single hadoop cluster and show the process using web UI on Windows system have been successfully completed.