



Best practices

Configure and run SWIM benchmark

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Introduction to SWIM

Official website: <https://github.com/SWIMProjectUCB/SWIM/wiki>

Tips for quick setup

Pre-condition

- Symphony cluster is ready with MR active
- HDFS is enabled.
- JDK is installed.

Steps

1. Download SWIM.

<https://github.com/SWIMProjectUCB/SWIM/archive/master.zip>

2. Install SWIM.

unzip SWIM package to any cluster node.

3. Configure SWIM. (Use facebook 2010 as example: FB-2010_samples_24_times_1hr_0.tsv)

//Generate scripts to execute the synthetic workload

- a) `cd $SWIM_HOME`
- b) `javac GenerateReplayScript.java`
- c) `java GenerateReplayScript`

[path to synthetic workload file]

[number of machines in the original production cluster]

[number of machines in the cluster where the workload will be running]

[size of each input partition in bytes]

[number of input partitions]

[output directory for the scripts]

[HDFS directory for the input data]

[prefix to workload output in HDFS]

[amount of data per reduce task in bytes]

[workload stdout stderr output dir]

[hadoop command]

[path to WorkGen.jar]

[path to workGenKeyValue_conf.xml]

```
Example: java -classpath $SWIM_HOME/ GenerateReplayScript FB-
2010_samples_24_times_1hr_0.tsv 3000 1 67108864 10 fb2010test workGenInput
workGenOutputTest 67108864 workGenLogs hadoop WorkGen.jar
'$HADOOP_HOME/conf/workGenKeyValue_conf.xml'
```

- d) Copy randomwriter_conf.xml and workGenKeyValue_conf.xml to the
\${HADOOP_HOME}/conf/

//Compile the MapReduce job used to write the input data set.

- e) mkdir hdfsWrite
javac -classpath \${HADOOP_HOME}/hadoop-\${HADOOP_VERSION}-core.jar -d
hdfsWrite HDFSWrite.java
jar -cvf HDFSWrite.jar -C hdfsWrite/ .

//Compile the MapReduce job used to read/shuffle/write data with prescribed data ratios

- f) mkdir workGen
javac -classpath \${HADOOP_HOME}/hadoop-\${HADOOP_VERSION}-core.jar -d
workGen WorkGen.java
jar -cvf WorkGen.jar -C workGen/ .
- g) Edit \$HADOOP_HOME/conf/randomwriter_conf.xml.

Make sure the test.randomwrite.bytes_per_map value is the same as the value used for
[size of each input partition in bytes] for 'java GenerateReplayScript'.

Also, set the configuration parameter test.randomwrite.total_bytes to be the product of
[size of each input partition in bytes] and [number of input partitions]

//Generate input

- h) hadoop jar HDFSWrite.jar org.apache.hadoop.examples.HDFSWrite -conf
\${HADOOP_HOME}/conf/randomwriter_conf.xml workGenInput

Note: If the CLI reports 'HDFS is in safemode' while creating input, run 'hadoop
dfsadmin -safemode leave' to reconfigure HDFS.

If the CLI reports 'Connect refused', refer to the following steps to check the health of
HDFS.

- i. Verify whether Name Node & Job Tracker processes are running or not. You can verify them using "Jps" command
- ii. If you use /hadoop/bin/start-dfs.sh it will start only NameNode & DataNode and not Job Tracker.
To run Job Tracker, you need to use "start-all.sh" instead of "start-dfs.sh"
- iii. Verify Namenodes & Job Trackers are running through URLs.
Name Node: <http://localhost:50070>
Job Tracker: <http://localhost:50030>
- iv. Verify the configuration settings @ hadoop/conf/*.xml. Make sure you define Name node details in "core-site.xml" and Jobtracker details in "mapred-site.xml"

4.Run workload.

```
cp -r fb2010test ${HADOOP_HOME}
cd ${HADOOP_HOME}/fb2010test
./run-jobs-all.sh &
```

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