Set the input parameter:

A: Set the Data Center parameter in DcConfiguration.java

* Step 1: Set the VM configuration and Server configuration
* Step 2: Set the effective number of VM types
* Step 3: Set the energy function. User can change the C1 and C2, and set the CPU\_CORE according to the actual truth.
  + For example: P= (0.08622\*s\*s\*s\*utilization+18.905)\*4
  + In above example: C1=0.8622, C2=18.905, CPU\_CORE=4
* Step 4: Set the available CPU frequency for this server
* Step 5: Set the T of BinDuration
* Step 6: Set the number of job

B: Set the Job parameter in JobConfiguration.java

* Step 7: Set the VM type of the job
* Step 8: Set the time of Map task
* Step 9: Set the time of Reduce task
* Step 10: Set the number of Map task
* Step 11: Set the number of Reduce task
* Step 12: Set the requirement of VM number
* Step 13: Set the lease time of virtual cluster
* Step 14: Set the configuration of Map slot in virtual cluster
  + In general case, Map slot is Vcpu\*2.
* Step 15: Set the configuration of Reduce slot in virtual cluster

Generate the place plan

* Step 16: Run TRP.java
* Step 17: The VM type and number on each node output is in “D://RecipeAccipte.txt”

Establish the virtual cluster

* Step 18: Change the frequency of each node according to the output
* Step 19: Configure the VM clusters and change the VM type of each VM by configuring the file in “/usr/xen” on node according to the output of above run
* Step 20: Start all VM
* Step 21: Configure the Hadoop cluster on server according to the output
* Step 22: Upload the data to HDFS

Submit the Hadoop Job

A: Configure the parameter in execute1.sh

* Step 23: Copy the execute1.sh to one node
* Step 24: Configure the IP of the virtual cluster's master in execute1.sh
* Step 25: Configure the command: ssh $node1 "cd /usr/local/hadoop/hadoop-1.1.0 && bin/start-mappred.sh && bin/hadoop jar hadoop-1.1.0-examples.jar sort rand rand-output"

B：Execute the execute1.sh

* Step 26: Execute the command “ sh execute1.sh”