

# **Configuration Manual**

MSc Research Project Cloud Computing

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#### National College of Ireland Project Submission Sheet School of Computing



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## **Configuration Manual**

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#### **1** Miminum Hardware requirement

- OS : Windows 10, 11
- Memory : minimum 8 GB
- Disk space : 30 GB minimum

### 2 Download eclipse IDE, JDK

- Before setting up CLoudsim Eclipse IDE and JDK must be Installed/downloaded on the local system
- JDK : https://www.oracle.com/java/technologies/downloads/?er=221886

### 3 Download CloudSim source code

- In this project we are using the most used version of cloud sim i.e. 3.0.3
- Download cloud sim from this link : https://github.com/Cloudslab/cloudsim/releases/tag/cloudsim-3.0.3

	9.9 MB	Mar 19, 2015
Ocloudsim-3.0.3.zip	13.1 MB	Mar 19, 2015
Source code (zip)		May 2, 2013
Source code (tar.gz)		May 2, 2013

Figure 1 : Download ClouSim library

- One more requirement for this version is external match library which has common jar package of math-related functions , version 3.6.1.
- Download it from : <u>https://commons.apache.org/proper/commons-</u> <u>math/download\_math.cgi</u>

### 4 Setting up CloudSim

• Open eclipse and create a new project "LoadBalancing" or any other name, select the path and click next

eate a Java Project iscouraged module name. By convention	, module names usually start with a lowercase letter	
Project name: LoadBalancing		
Use default location		
Use default location Location: C:\Users\acer\Desktop\Resear	rch in computing\FInal Research sem 3\LoadBalancing\LoadBalancing	Browse
Use default location Location: C:\Users\acer\Desktop\Resear JRE	rch in computing\FInal Research sem 3\LoadBalancing\LoadBalancing	Browse
<ul> <li>Use default location</li> <li>Location: C:\Users\acer\Desktop\Resear</li> <li>JRE</li> <li>Use an execution environment JRE:</li> </ul>	rch in computing\FInal Research sem 3\LoadBalancing\LoadBalancing JavaSE-21	Browse
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Figure 2: Creating project in Eclipse

• Open library tab go to library , java build path to add all the cloudSim libraries and external jar file, click apply and close

type filter text	Java Build Path
<ul> <li>&gt; Resource Builders Coverage Java Build Path</li> <li>&gt; Java Code Style</li> <li>&gt; Java Compiler Javadoc Location</li> <li>&gt; Java Editor Project Natures Project References Refactoring History Run/Debug Settings</li> <li>&gt; Task Repository WikiText</li> </ul>	Source       Projects       Libraries       Order and Export       Module Dependencies         JARs and class folders on the build path: <ul> <li>Modulepath</li> <li>JRE System Library [jdk-21]</li> <li>Classpath</li> <li>Cloudsim-3.0.3.jar - CloudLoadBalancing/jars</li> <li>Cloudsim-3.0.3.sources.jar - CloudLoadBalancing/jars</li> <li>Cloudsim-examples-3.0.3.jar - CloudLoadBalancing/jars</li> <li>Cloudsim-examples-3.0.3.sources.jar - CloudLoadBalancing/jars</li> <li>Cloudsim-examples-3.0.3.sources.jar - CloudLoadBalancing/jars</li> <li>Condumnes-math3-3.6.1.jar - CloudLoadBalancing/jars</li> <li>jiswarm-pso_2.08.jar - C:\Users\acer\Desktop\Research in computing\Flual Research sem 3\stressed</li> </ul>

Figure 3 : Add jar file to library

• After the project is configured, open package explorer, for first time eclipse automatically starts building the workspace for the new configured cloudsim project.



Figure 4: Project build

#### 5 Add the Algorithm Implementation Files

- Download the ACO.java, SA.java, ACO\_SA.java, and CloudSimACO\_SA.java files.
- Place these file in "src/main/java/org/cloudbus/cloudsim/examples/aco\_sa/ " directory.



Figure 5 : Place project file to correct directory

### 6 Run the simulation

• Navigate to the CloudSimACO\_SA.java file.



Figure 6 : Run CloudSim ACO\_SA.java

- Run the main method in CloudSimACO\_SA.java. to run the simulation. \_
- From here simulation parameters can be initiated and configured.
- Similarly PSO and ACO simulation codes can be executed.

#### 7 Review Results

• Execution of algorithm and cloudlets(taskS) detail will be displayed in console tab

```
E Console X
<terminated> CloudSimACO_SA [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (07
Cloudlet 33 is assigned to VM 1
Cloudlet 34 is assigned to VM 3
Cloudlet 35 is assigned to VM 2
Cloudlet 36 is assigned to VM 3
Cloudlet 37 is assigned to VM 0
Cloudlet 38 is assigned to VM 0
Cloudlet 39 is assigned to VM 2
Starting CloudSim version 3.0
Datacenter 0 is starting ...
Broker is starting ...
Entities started.
0.0: Broker: Cloud Resource List received with 1 resource(s)
0.0: Broker: Trying to Create VM #0 in Datacenter 0
0.0: Broker: Trying to Create VM #1 in Datacenter 0
0.0: Broker: Trying to Create VM #2 in Datacenter 0
0.0: Broker: Trying to Create VM #3 in Datacenter 0
0.0: Broker: Trying to Create VM #4 in Datacenter 0
0.1: Broker: VM #0 has been created in Datacenter #2, Host #0
0.1: Broker: VM #1 has been created in Datacenter #2, Host #1
o is purchase the first success in pressure to
```

Figure 7 : Console tab

#### Console × <terminated> CloudSimACO\_SA [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (07-Aug-2024, 1:13:17 pm - 1:13:18 pm) [pid: 17816] Datacenter\_0 is shutting down... Broker is shutting down... Simulation completed.

•	The output wil	l include the	cloudlet execution	on details.
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====== OUTH	PUT ======					
Cloudlet ID	STATUS	Data center ID	VM ID	Time	Start Time	Finish Time
2	SUCCESS	2	4	280	0	280
13	SUCCESS	2	4	280	0	280
18	SUCCESS	2	4	280	0	280
23	SUCCESS	2	4	280	0	280
25	SUCCESS	2	4	280	0	280
27	SUCCESS	2	4	280	0	280
30	SUCCESS	2	4	280	0	280
1	SUCCESS	2	1	280	0	280
10	SUCCESS	2	1	280	0	280
12	SUCCESS	2	1	280	0	280

Figure 8: Console tab

### References

Simulation completed.

Guide to install Cloudsim

URL : https://cloudsimtutorials.online/cloudsim-setup-using-eclipse/