

This document presents a detailed description to run the software developed for the paper entitled "Profiling SLAs for Cloud System Infrastructures and User Interactions". We provide a Virtual Machine that contains this software properly installed and configured. This Virtual Machine can be downloaded from [http://antares.sip.ucm.es/cana/umlCloud/Ubuntu.16.04.4.Desktop.\(64.bits\).7z](http://antares.sip.ucm.es/cana/umlCloud/Ubuntu.16.04.4.Desktop.(64.bits).7z)

Launch the Virtual Machine

1. Download Virtual Box¹. This is free software to run virtual machines that is currently available for the most common operating systems, such as Windows, Linux and MacOS.
2. Extract the Virtual Machine from the downloaded file [Ubuntu.16.04.4.Desktop.\(64.bits\).7z](#)
 - 2.1. This generates a folder named [Ubuntu.16.04.4.Desktop.\(64.bits\)](#)
3. Open Virtual Box -> Machine -> Add...
 - 3.1. Select the file [Ubuntu.16.04.4.Desktop.\(64.bits\).vbox](#) from the folder generated after the extraction of the Virtual Machine (step 2.1)
4. Select this Virtual Machine from the Virtual Box main menu.
 - 4.1. Click on "start" icon.

Model from cloud system example model and transform to simulator files

1. Open Papyrus, which must have UML2Cloud tools installed:
 - 1.1. Double click on the Link to Papyrus placed on the desktop.
2. Create Papyrus project from project.
 - 2.1. Open New -> Example...
 - 2.2. Select UML2Cloud Examples
 - 2.3. Click on Next >
 - 2.4. Select baseCloudSystem example project.
 - 2.5. Click on Finish.
3. Edit the cloud system model.
4. Validate the cloud system model.
 - 4.1. Right click on baseCloudSystem model.
 - 4.2. Click on Validation > Validate model
 - 4.3. Correct the model if errors are shown.
5. Execute M2T transformation to generate simulator files.
 - 5.1. Right click on baseCloudSystem.uml file.
 - 5.2. Click on Acceleo Model to Text > Generate Simcan2Cloud Files
6. Execute simulation of modelled cloud system.
 - 6.1. Copy folder with files to simulations folder.
 - 6.2. (Optional) Copy images folder into the generated folder.
 - 6.3. Open a Terminal (see left frame).
 - 6.4. Go to simulations folder:
 - 6.4.1. Type: `cd $SIMCAN2CLOUD_HOME/simulations`
 - 6.5. To run simulation from the modelled cloud system:
 - 6.5.1. Go to cloudInfrastructure folder:
 - 6.5.1.1. Type: `cd CloudInfrastructure`
 - 6.5.2. Add execution permissions to run file.
 - 6.5.2.1. Type: `chmod +x run`
 - 6.5.3. Execute:
 - 6.5.3.1. Type: `./run`
 - 6.5.4. Set the interval between users (user arrival algorithm):
 - 6.5.5. Click on the "run" icon to execute the simulations. Also, you can click on the "fast" icon to run faster by avoiding the output trace.

¹ <https://www.virtualbox.org>

² <https://dsi.uclm.es/cloud/modeling/uml2cloud/releases/2>

Execute experiments presented in *Section 6 Empirical Study*

1. Open a Terminal (see left frame).
2. Go to simulations folder:
 - 2.1. Type: `cd $SIMCAN2CLOUD_HOME/simulations`
3. To run test cases from the experiments:
 - 3.1. Go to scenarioTest_cost folder:
 - 3.1.1. Type: `cd ScenarioTest_cost`
 - 3.2. Execute:
 - 3.2.1. Type: `./run`
 - 3.3. Select a test case from the combo-box.
 - 3.4. Click on the "run" icon to execute the simulations. Also, you can click on the "fast" icon to run faster by avoiding the output trace.