Aqua-Sim-NG Installation
3/27/2020
(Based on Ubuntu 18.04.2 LTS)

1.1. Basic host system requirements

For running ns-3 simulations with aqua-sim, a Linux-based operating system is needed with the following requirements:

- **recommended Linux distribution:** *Ubuntu 16.04 or highe*r, with *linux-kernel 4.4.0 or higher*.

- **gcc compiler version:** *5.4.0 or higher*

- for Ubuntu, run the following command to install all necessary (and beyond) requirements:

```
sudo apt-get install build-essential gcc g++ python python3 autoconf cvs bzr
unrar git bunzip2
```

1.2. Installation

The latest aqua-sim-ng repository is available here:
http://hudson.ccny.cuny.edu/download/aquasim-ng.tgz

To download and unpack the latest source code of aqua-sim-ng with ns-3.29 using the command line, do the following:

```
cd ~/
mkdir workspace
cd workspace
wget http://hudson.ccny.cuny.edu/download/aquasim-ng.tgz
tar xvf aquasim-ng.tgz
```

To install ns-3.29 with aqua-sim, go to ns-3.29 working directory (ns-3 working directory **is always the directory with waf binary file inside!!!)**

```
cd ~/workspace/aquasim-ng/ns-3.29
./waf clean
cp ./src/applications/model/onoff-application.h ./build/ns3
```

Configure ns-3. Run the following command:

```
cd ~/workspace/aquasim-ng/ns-3.29
./waf configure --build-profile=debug --enable-examples --disable-python
```

The command above will configure ns-3.29 with *debug build* profile, which allows much more detailed output while running custom network protocols (that's what we need). During the process, you may see some warning messages, such as some options were "not enabled". You can install these options at a later time when you need them. Some notes on the configure command:

- *enable-examples* flag allows running additional simulation script from the examples folder of any compiled simulation module, including aqua-sim-ng.
- *disable-python* flag disables additional python-binding to run selected simulation scripts in Python programming language.

After configuring ns-3, build the simulator codebase, using the following command:

```
cd ~/workspace/aquasim-ng/ns-3.29
./waf build
```

This will take approximately **15 minutes**, depending on the available CPU resources.

1.3 Validating

After a successful build, you are ready to run simulation scripts and develop custom protocols.

You can also run the test script to verify the installation:

```
cd ~/workspace/aquasim-ng/ns-3.29
./test.py
```