

## NS3 Guidance by Russel

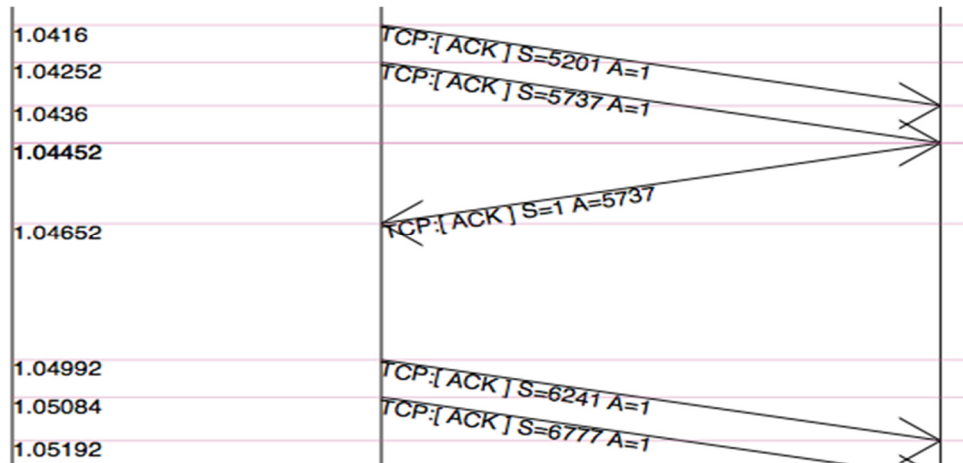
NS-3 Network Simulator is a power research tool that gives users the ability to test routing algorithms and protocols without needing physical hardware. It is essentially a collection of software libraries which are downloaded as source code and built on top of an existing OS. The network simulator was installed directly inside the ContikiOS environment by following the installation steps on the company website, <https://www.nsnam.org/documentation/>.

The software libraries consist of many current network technologies including Bluetooth, LTE, and protocols like AODV and DSR. A basic implementation of these technologies is available in both C++ and Python languages. They can be used to simulate communication between nodes at various distances and built upon for custom uses. Going forward, the Bulldog Mote Team will be developing a custom routing algorithm for the Bulldog Mote; likely as a variation of the AODV protocol.

NS-3 libraries also has an animator called NetAnim used for visualising simulation results in several ways including: packets sent between nodes, packet timelines, and graphs/tables. Some examples are shown below.



Packet animation between nodes.



Packet send and receive timeline.

**You can find a NS3 Tutorials here:**

<https://www.youtube.com/watch?v=T8NwCPROYYA&list=PLRAV69dS1uWQEbcHnKbLldvzrjdOcOIdY>

## **INSTALLING NS3 IN UBUNTU 14.04:**

I)ubuntu is installed run following command opening your terminal(use shortcut:ctrl+alt+T).

II)To install prerequisites type given below command

```
sudo apt-get install gcc g++ python python-dev mercurial bzip2 gdb valgrind gsl-bin libgsl0-dev libgsl0ldbl flex bison tcpdump sqlite sqlite3 libsqlite3-dev libxml2 libxml2-dev libgtk2.0-0 libgtk2.0-dev uncrustify doxygen graphviz imagemagick texlive texlive-latex-extra texlive-generic-extra texlive-generic-recommended texinfo dia texlive texlive-latex-extra texlive-extra-utils texlive-generic-recommended texi2html python-pygraphviz python-kiwi python-pygoocanvas libgoocanvas-dev python-pygccxml
```

ask password ,give your system password

III) Download NS-3.26 given below link

<https://www.nsnam.org/ns-3-26/download/>

IV) ns-allinone-3.26.tar copy and paste into ubuntu Home location  
then extract the ns-allinone-3.26.tar file

V) next terminal to type the command:

```
cd ns-allinone-3.26/
```

VI) Then you can find build.py along with other files so type the command

```
./build.py
```

If the build is successful then it will give output "Build finished successfully".

VII) To build with waf so move to ns-3.25 so type command: cd ns-3.26

```
sudo ./waf
```

display your ns3 supported modules like(AODV,DSR,CSMA,etc...)

These above seven steps to ns3 installation completed!

After changes in code. Put the .cc file in scratch folder

go to terminal type this command

```
a) sudo ./waf configure
```

```
b) sudo ./waf build
```

Get build finished successfully message

run command:

```
1) sudo ./waf --run filename --vis
```

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