Jawahar Education Societys Annasaheb Chudaman Patil College of Engineering, Kharghar, Navi Mumbai

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Batch: 03

EXPERMINT: 03

●Aim: Installation and configuration of NS2 in Ubuntu.

●Theory:

❖ Network simulator:

Network simulation is one kind of method in the research of a computer network where a software program forms the performance of a network by Analyzing the relations between the various network entities such as links, Nswitched, routers, nodes, access points. The network performance, different applications, services & supports can be monitored in an analysis lab. Different features of the surroundings can also be changed in a controlled way to evaluate how the network or protocols would perform beneath different conditions.

Ex.

- Network Simulator version 2 (NS-2)
- Ns3
- Netkit

Network Simulator ns2 version 2

NS2 is an open-source simulation tool that runs on Linux. It is a discreet event simulator targeted at networking research and provides substantial support for simulation of routing, multicast protocols and IP protocols, such as UDP, TCP, RTP and SRM over wired and wireless (local and satellite) networks.

Step of Installation and configuration of NS2 in Ubuntu:

Step 01: to install ns2 use command:

Sudo apt-get install ns2

```
student1@acpce-IT:~$ sudo apt-get install ns2
[sudo] password for student1:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libotcl1 libtclcl1
Suggested packages:
  gnuplot
The following NEW packages will be installed:
  libotcl1 libtclcl1 ns2
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 2,103 kB of archives.
After this operation, 13.9 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu xenial/universe amd64 libotcl1 amd64 1.14+dfsg-3 [22.7 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu xenial/universe amd64 libtclcl1 amd64 1.20-8 [62.5 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu xenial/universe amd64 ns2 amd64 2.35+dfsg-2ubuntu1 [2,018 kB]
79% [3 ns2 1,641 kB/2,018 kB 81%]                                              49.5 kB/s 7s
```

Step 02: to install **Nam** use command:

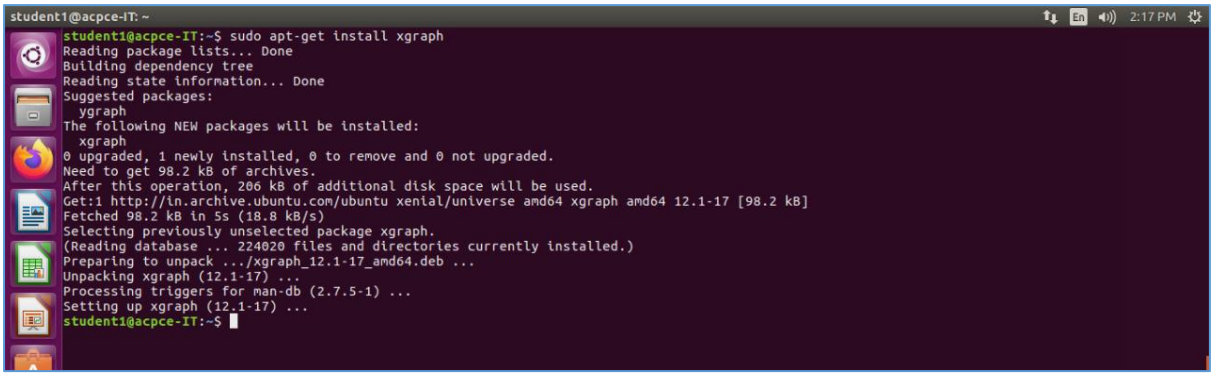
Nam (Network Animator) is an animation tool to graphically represent the network and packet traces.

Sudo apt-get install nam

Step 03: to install **xgraph** use command:

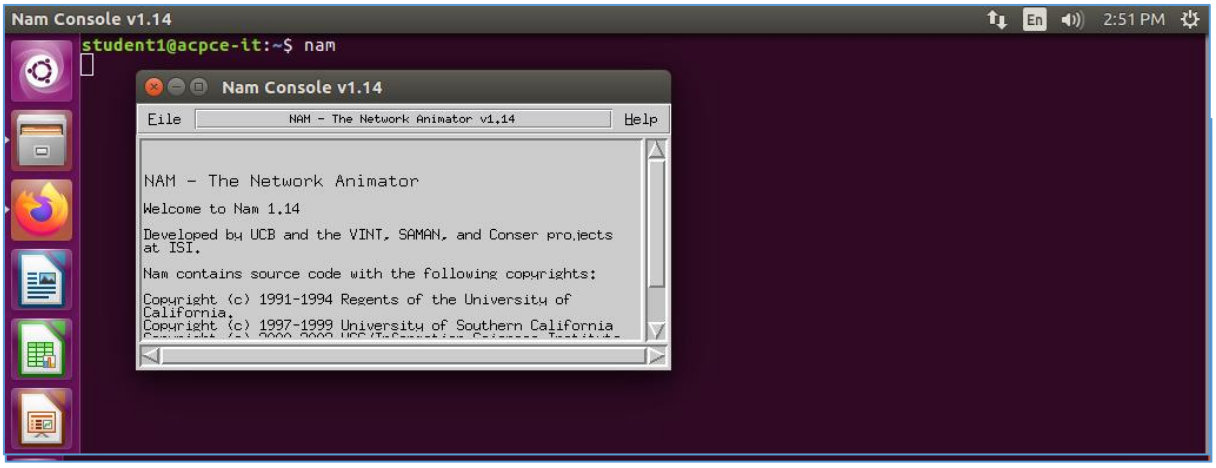
xgraph in ns2 is used to plot the network parameter characteristics like throughput, delay, jitter, latency etc.

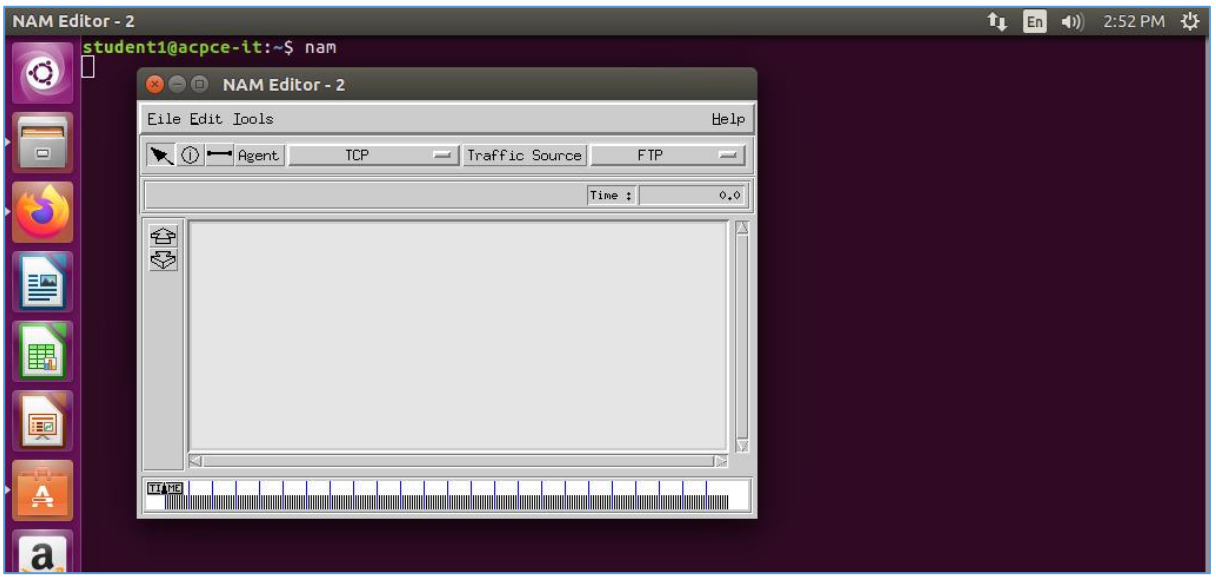
Sudo apt-get install xgraph



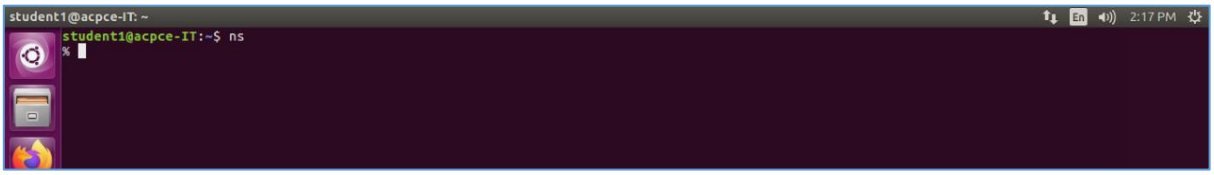
Step 04: use **ns** command:

ns





Step 05: use **nam** command:



● **<u>Conclusion</u>**: Hence, we have implemented **Installation and configuration of NS2 in Ubuntu as well as network simulation.**

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B) *NS2 installation on Ubuntu:*

●Aim: Installation and configuration of NS2 in Ubuntu.

●Theory:

1. System requirements:

For install the NS-2.35, we need the following minimum system requirements.

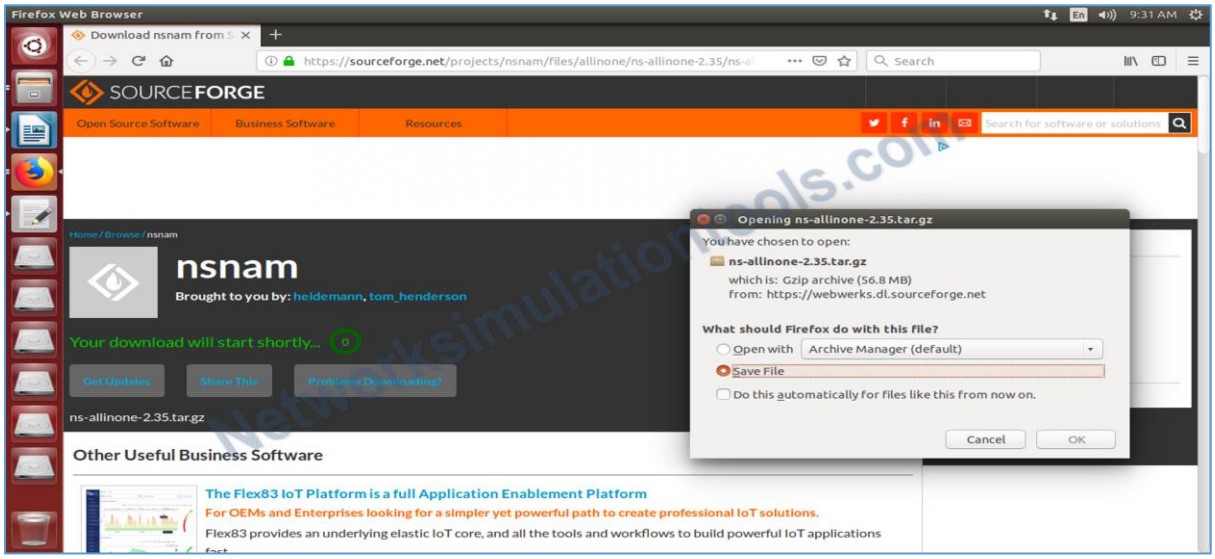
1) OS: ubuntu-14.04 LTS (32 bit)

2) RAM: minimum 2GB

3) Processor: 2.5 GHz and above

2 Download the NS-2.35

- Download the ns-allinone-2.35.tar.gz package from the following url,
- https://sourceforge.net/projects/nsnam/files/allinone/ns-allinone-2.35/ns-allinone-2.35.tar.gz/download.



3. Open the terminal and verify the installed package:

Initially, next open the terminal by press **Crt+alt+t** buttons or search from the installed software list.

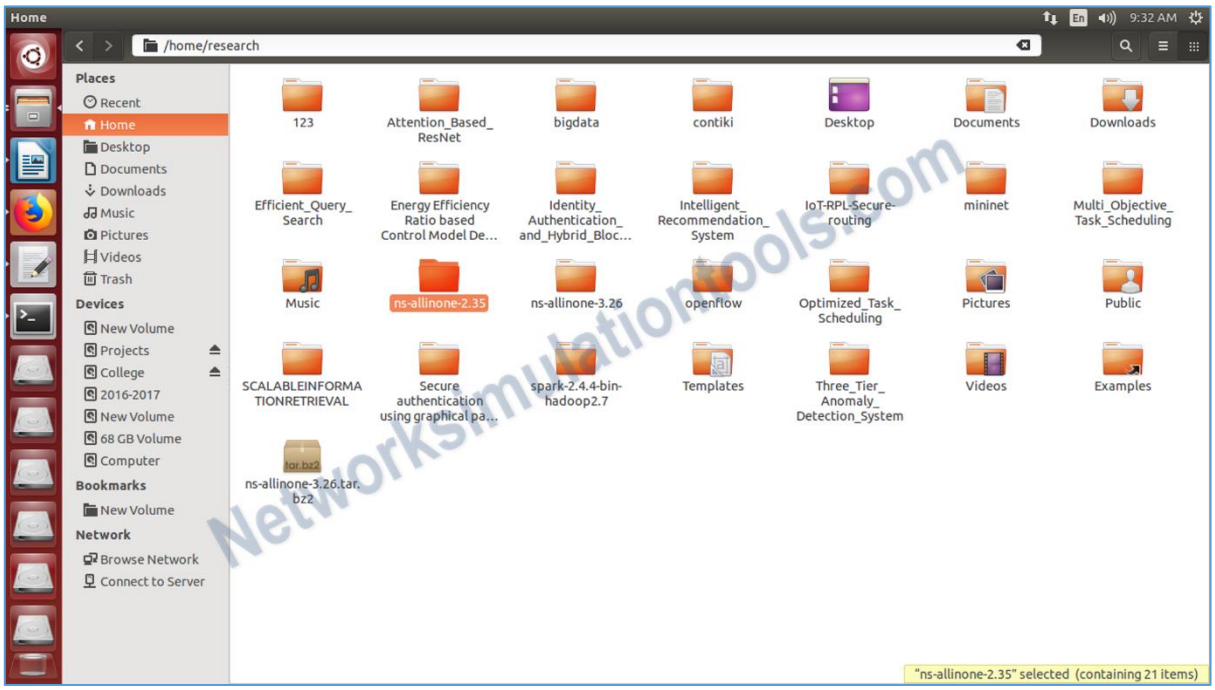
4. **Install the Required supported packages:**

To install prerequisites typeand execute the given below command:

sudo apt-get install gcc g++ python python-dev mercurial bzr 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.

5. <u>Change the location by using cd command:</u>



After download the ns-allinone-2.35.tar copy and paste into Ubuntu Home location then extract the ns-allinone-2.35.tar file

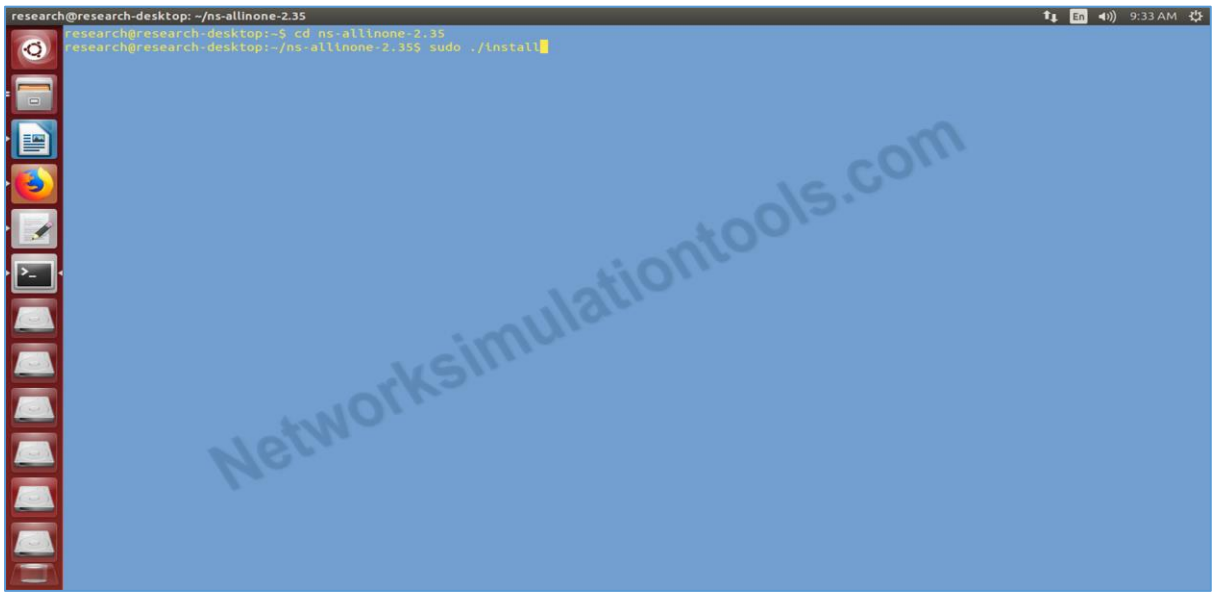
6. <u>Execute the cd command:</u>

Next terminal to type the command:

cd ns-allinone-2.35/

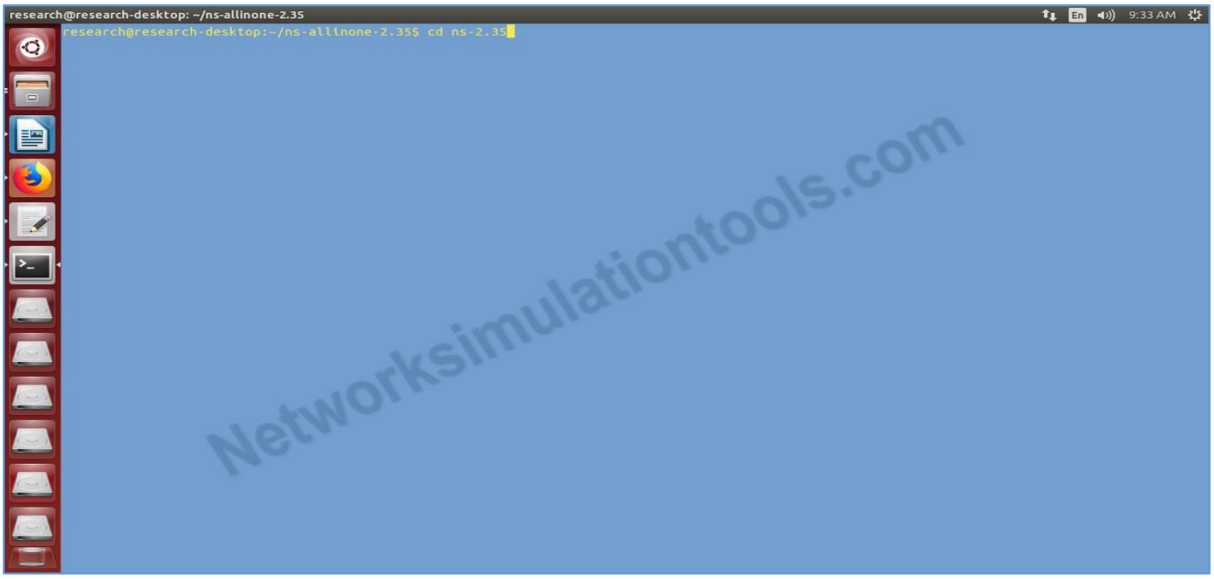
7. **Execute the install command:**

Execute the command sudo ./install



8. **Execute the command cd ns-2.35:**

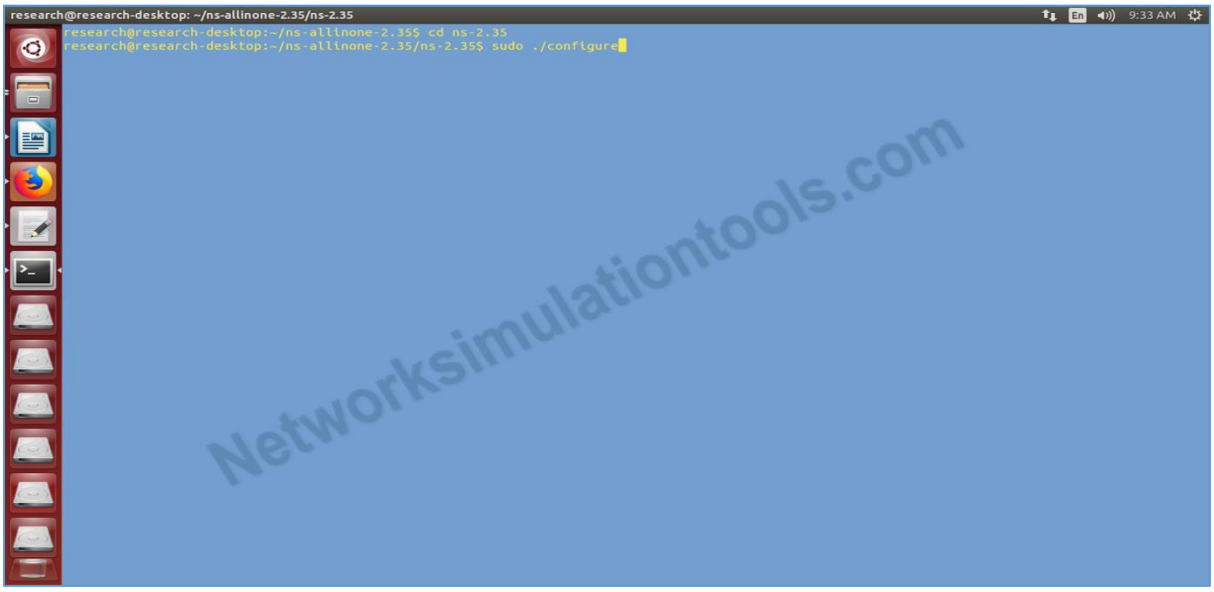
Execute the command cd ns-2.35 cd ns-2.35.



9. **Execute the configure command:**

   Execute the configure command

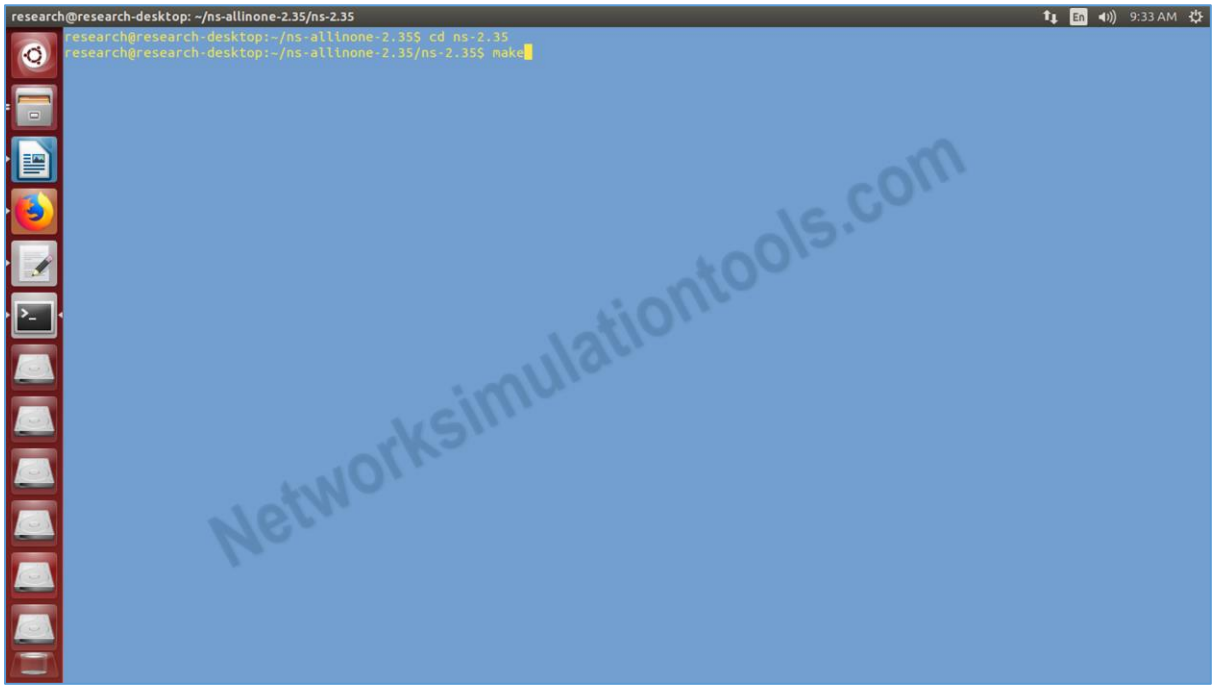
   sudo ./configure



10. Execute the make command

Execute the make command

Make



● **Conclusion**: Hence, we have implemented **Installation and configuration of NS2 in Ubuntu**.