

Introduction

Network Simulator or NS is a name for a series of discrete event network simulators, specifically NS-1, NS-2, and NS-3. All are discrete-event computer network simulators, primarily used in research and teaching.

NS-2 began as a revision of NS-1. From 1997-2000, NS development was supported by DARPA through the VINT project at LBL, Xerox PARC, UCB, and USC/ISI. In 2000, NS-2 development was supported through DARPA with SAMAN and through NSF with CONSER, both at USC/ISI, in collaboration with other researchers including ACIRI.

NS-2 incorporates substantial contributions from third parties, including wireless code from the UCB Daedalus and CMU Monarch projects and Sun Microsystems.

NS-2 is designed to run from on most UNIX based operating systems. It is possible to run NS-2 on Windows machines using Cygwin. If you don't have a UNIX install, you can also use a virtual linux machine and run that under Windows. VMWare has a free [VMWare Player](#) that allows you to download linux systems like [Ubuntu](#) and run them on your computer. You will need to make sure you have standard development packages like 'make' and 'gcc'.

Pre-requisites

- 1) First, we need to download a copy of [ns-allinone-2.34.tar.gz](#).
- 2) Next in-order to install NS-2 in a separate user account, we must create a new user account in linux.
- 3) We go to the system settings and then into user accounts.
- 4) We press the unlock button and then add a new user using the '+' sign.
- 5) I create an administrator type account and add my name 'anirbanac' and add a password in order to activate my account. (otherwise it stays disabled)
- 6) Then I log out of current session and other user accounts if logged in.
- 7) I log into my account (anirbanac) and open the terminal to begin the process of installing NS-2.

Steps

1) Update package information:

First we update package information with 'sudo apt-get update' command, which is used to download package information from all configured sources.

```
anirbanac@lab3pc18-OptiPlex-3060: ~
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

anirbanac@lab3pc18-OptiPlex-3060:~$ sudo apt-get update
[sudo] password for anirbanac:
Ign:1 http://archive.canonical.com/ubuntu xenial InRelease
Ign:2 http://dl.google.com/linux/chrome/deb stable InRelease
Ign:3 http://ppa.launchpad.net/swi-prolog/stable/ubuntu xenial InRelease
Ign:4 http://dell.archive.canonical.com/updates xenial-dell-bison-elk-cougar InRelease
Ign:5 http://dell.archive.canonical.com/updates xenial-dell-service InRelease
Ign:6 http://dell.archive.canonical.com/updates xenial-dell InRelease
Ign:7 http://archive.ubuntu.com/ubuntu xenial InRelease
Ign:8 http://archive.ubuntu.com/ubuntu xenial-updates InRelease
Ign:9 http://archive.ubuntu.com/ubuntu xenial-backports InRelease
Ign:10 http://security.ubuntu.com/ubuntu xenial-security InRelease
Ign:11 http://archive.canonical.com/ubuntu xenial Release
Ign:12 http://archive.ubuntu.com/ubuntu xenial Release
Ign:13 http://archive.ubuntu.com/ubuntu xenial-updates Release
Ign:14 http://dl.google.com/linux/chrome/deb stable Release
Ign:15 http://ppa.launchpad.net/swi-prolog/stable/ubuntu xenial Release
Ign:16 http://dell.archive.canonical.com/updates xenial-dell-bison-elk-cougar Release
Ign:17 http://dell.archive.canonical.com/updates xenial-dell-service Release
Ign:18 http://archive.canonical.com/ubuntu xenial/partner amd64 Packages.diff/Index
Ign:19 http://security.ubuntu.com/ubuntu xenial-security Release
Ign:20 http://archive.ubuntu.com/ubuntu xenial-backports Release
Ign:21 http://archive.ubuntu.com/ubuntu xenial/main amd64 Packages.diff/Index
Ign:22 http://archive.ubuntu.com/ubuntu xenial/main i386 Packages.diff/Index
Ign:23 http://archive.ubuntu.com/ubuntu xenial/main all Packages
Ign:24 http://archive.ubuntu.com/ubuntu xenial/main Translation-en_IN
Ign:25 http://archive.ubuntu.com/ubuntu xenial/main Translation-en.diff/Index
Ign:26 http://archive.ubuntu.com/ubuntu xenial/main amd64 DEP-11 Metadata.diff/Index
Ign:27 http://archive.ubuntu.com/ubuntu xenial/main DEP-11 64x64 Icons.diff/Index
Ign:28 http://archive.ubuntu.com/ubuntu xenial/restricted amd64 Packages.diff/Index
Ign:29 http://archive.ubuntu.com/ubuntu xenial/restricted i386 Packages.diff/Index
Ign:30 http://dl.google.com/linux/chrome/deb stable/main amd64 Packages.diff/Index
Ign:31 http://ppa.launchpad.net/swi-prolog/stable/ubuntu xenial/main amd64 Packages.diff/Index
Ign:32 http://dell.archive.canonical.com/updates xenial-dell Release
Ign:33 http://dell.archive.canonical.com/updates xenial-dell-bison-elk-cougar/public amd64 Packages
Ign:34 http://dell.archive.canonical.com/updates xenial-dell-bison-elk-cougar/public i386 Packages
Ign:35 http://dell.archive.canonical.com/updates xenial-dell-bison-elk-cougar/public all Packages
Ign:36 http://dell.archive.canonical.com/updates xenial-dell-bison-elk-cougar/public Translation-en_IN
Ign:37 http://dell.archive.canonical.com/updates xenial-dell-bison-elk-cougar/public Translation-en
Ign:38 http://dell.archive.canonical.com/updates xenial-dell-bison-elk-cougar/public amd64 DEP-11 Metadata
Ign:39 http://dell.archive.canonical.com/updates xenial-dell-bison-elk-cougar/public DEP-11 64x64 Icons
Ign:40 http://archive.ubuntu.com/ubuntu xenial/restricted all Packages
Ign:41 http://archive.ubuntu.com/ubuntu xenial/restricted Translation-en_IN
Ign:42 http://archive.ubuntu.com/ubuntu xenial/restricted Translation-en.diff/Index
Ign:43 http://archive.ubuntu.com/ubuntu xenial/restricted amd64 DEP-11 Metadata.diff/Index
Ign:44 http://archive.ubuntu.com/ubuntu xenial/restricted DEP-11 64x64 Icons
Ign:45 http://archive.ubuntu.com/ubuntu xenial/universe amd64 Packages.diff/Index
Ign:46 http://archive.ubuntu.com/ubuntu xenial/universe i386 Packages.diff/Index
```

2) Install gcc (if not present, it usually is), autoconf automake, tcl8.5 and tk8.5:

If gcc is not installed, we install it next using 'sudo apt-get install gcc'.

If installed but needs updation (for old versions) we can use 'sudo apt-get update gcc'.

In my case its already installed and updated before-hand so I'll move onto installation of autoconf automake package.

Install it using 'sudo apt-get install build-essential autoconf automake '.

Next Install tcl8.5 and tk8.5 packages using 'sudo apt-get install tcl8.5-dev tk8.5-dev'.

```
anirbanac@lab3pc18-OptiPlex-3060: ~  
anirbanac@lab3pc18-OptiPlex-3060:~$ sudo apt-get install build-essential autoconf automake  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
autoconf is already the newest version (2.69-9).  
automake is already the newest version (1:1.15-4ubuntu1).  
build-essential is already the newest version (12.1ubuntu2).  
The following packages were automatically installed and are no longer required:  
  apt-clone archdetect-deb dmeventd dmraid gir1.2-clutter-1.0 gir1.2-clutter-gst-3.0 gir1.2-cogl-1.0  
  gir1.2-networkmanager-1.0 gir1.2-nma-1.0 gir1.2-timzone-1.0 gir1.2-xkl-1.0 kpartx kpartx-boot  
  liblvm2app2.2 liblvm2cmd2.02 libparted-fs-resize0 libreadline5 linux-headers-4.13.0-1028-oem linux-headers-4.15.0-58  
  linux-headers-4.15.0-58-generic linux-headers-4.15.0-60 linux-headers-4.15.0-62-generic linux-headers-4.15.0-64  
  linux-image-4.13.0-1028-oem linux-image-4.15.0-55-generic linux-image-4.15.0-58-generic linux-image-4.15.0-64-generic  
  linux-image-4.15.0-65-generic linux-modules-4.15.0-55-generic linux-modules-4.15.0-62-generic linux-modules-4.15.0-64-generic  
  linux-modules-4.15.0-65-generic linux-modules-extra-4.15.0-58-generic linux-modules-extra-4.15.0-60-generic linux-modules-extra-4.15.0-65-generic  
  linux-oem-headers-4.13.0-1028 linux-signed-image-4.13.0-1028  
Use 'sudo apt autoremove' to remove them.  
0 upgraded, 0 newly installed, 0 to remove and 236 not upgraded.  
anirbanac@lab3pc18-OptiPlex-3060:~$ sudo apt-get install tcl8.5-dev tk8.5-dev  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  apt-clone archdetect-deb dmeventd dmraid gir1.2-clutter-1.0 gir1.2-clutter-gst-3.0 gir1.2-cogl-1.0  
  gir1.2-networkmanager-1.0 gir1.2-nma-1.0 gir1.2-timzone-1.0 gir1.2-xkl-1.0 kpartx kpartx-boot  
  liblvm2app2.2 liblvm2cmd2.02 libparted-fs-resize0 libreadline5 linux-headers-4.13.0-1028-oem linux-headers-4.15.0-58  
  linux-headers-4.15.0-58-generic linux-headers-4.15.0-60 linux-headers-4.15.0-62-generic linux-headers-4.15.0-64  
  linux-image-4.13.0-1028-oem linux-image-4.15.0-55-generic linux-image-4.15.0-58-generic linux-image-4.15.0-64-generic  
  linux-image-4.15.0-65-generic linux-modules-4.15.0-55-generic linux-modules-4.15.0-62-generic linux-modules-4.15.0-64-generic  
  linux-modules-4.15.0-65-generic linux-modules-extra-4.15.0-58-generic linux-modules-extra-4.15.0-60-generic linux-modules-extra-4.15.0-65-generic  
  linux-oem-headers-4.13.0-1028 linux-signed-image-4.13.0-1028  
Use 'sudo apt autoremove' to remove them.  
The following additional packages will be installed:  
  libexpat1-dev libfontconfig1-dev libfreetype6-dev libpng12-dev libpthread-stubs0-dev libtcl8.5 lib  
  libxext-dev libxft-dev libxrender-dev libxss-dev tcl8.5 tk8.5 x11proto-core-dev x11proto-input-dev  
  x11proto-xext-dev xorg-sgml-doctools xtrans-dev zlib1g-dev  
Suggested packages:  
  libxcb-doc libxext-doc tcl-tclreadline tcl8.5-doc tk8.5-doc  
The following NEW packages will be installed:  
  libexpat1-dev libfontconfig1-dev libfreetype6-dev libpng12-dev libpthread-stubs0-dev libtcl8.5 lib  
  libxext-dev libxft-dev libxrender-dev libxss-dev tcl8.5 tcl8.5-dev tk8.5 tk8.5-dev x11proto-core-d  
  x11proto-scrnsaver-dev x11proto-xext-dev xorg-sgml-doctools xtrans-dev zlib1g-dev  
0 upgraded, 29 newly installed, 0 to remove and 236 not upgraded.  
Need to get 8,117 kB of archives.  
After this operation, 39.4 MB of additional disk space will be used.
```

Press Y to continue when prompted:

```
Do you want to continue? [Y/n] Y  
Get:1 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 zlib1g-dev amd64 1:1.2.8.dfsg-2ubuntu  
Get:2 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 libpng12-dev amd64 1.2.54-1ubuntu1.  
Get:3 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 libfreetype6-dev amd64 2.6.1-0.1ubu  
Get:4 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 libfontconfig1-dev amd64 2.11.94-0u  
18% [4 libfontconfig1-dev 262 kB/658 kB 40%]  
Get:5 http://archive.ubuntu.com/ubuntu xenial/main amd64 libpthread-stubs0-dev amd64 0.3-4 [4,068 B]  
Get:6 http://archive.ubuntu.com/ubuntu xenial/universe amd64 libtcl8.5 amd64 8.5.19-1 [696 kB]  
Get:7 http://archive.ubuntu.com/ubuntu xenial/universe amd64 libtk8.5 amd64 8.5.19-1ubuntu1 [655 kB]  
Get:8 http://archive.ubuntu.com/ubuntu xenial/main amd64 xorg-sgml-doctools all 1:1.11-1 [12.9 kB]  
Get:9 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 x11proto-core-dev all 7.0.31-1-ubun  
Get:10 http://archive.ubuntu.com/ubuntu xenial/main amd64 libxau-dev amd64 1:1.0.8-1 [11.1 kB]  
Get:11 http://archive.ubuntu.com/ubuntu xenial/main amd64 libxdmcp-dev amd64 1:1.1.2-1.1 [25.1 kB]  
Preparing to unpack .../x11proto-scrnsaver-dev_1.2.2-1_all.deb ...  
Unpacking x11proto-scrnsaver-dev (1.2.2-1) ...  
Selecting previously unselected package libxss-dev:amd64.
```


(We can install other optional packages such as perl xgraph libxt libxll and libx, but they are not required. If needed we can install them using 'sudo apt-get install perl xgraph libxt-dev libxll-dev libxmu-dev'.)

3) Copy NS-2 package (tar.gz) into a folder (say 'opt') from home directory and then move to that directory in terminal using cd /folder/ command.

Now extract NS-2 using 'sudo tar -zxvf ns-allinone-2.35.tar.gz'.

```
anirbanac@lab3pc18-OptiPlex-3060: /opt
anirbanac@lab3pc18-OptiPlex-3060:~$ sudo cp /home/anirbanac/ns-allinone-2.35.tar.gz /opt/
anirbanac@lab3pc18-OptiPlex-3060:~$ cd /opt/
anirbanac@lab3pc18-OptiPlex-3060:/opt$ sudo tar -zxvf ns-allinone-2.35.tar.gz
ns-allinone-2.35/
ns-allinone-2.35/xgraph-12.2/
ns-allinone-2.35/xgraph-12.2/ps.c
ns-allinone-2.35/xgraph-12.2/configure.in
ns-allinone-2.35/xgraph-12.2/README.GENERAL
ns-allinone-2.35/xgraph-12.2/xgraph.c
ns-allinone-2.35/xgraph-12.2/Makefile.in
ns-allinone-2.35/xgraph-12.2/autoconf.h.in~
ns-allinone-2.35/xgraph-12.2/init.c
ns-allinone-2.35/xgraph-12.2/INSTALL
ns-allinone-2.35/xgraph-12.2/stamp-h.in
ns-allinone-2.35/xgraph-12.2/params.h
ns-allinone-2.35/xgraph-12.2/xgraph.man
ns-allinone-2.35/xgraph-12.2/bitmaps/
ns-allinone-2.35/xgraph-12.2/bitmaps/mark1.11
ns-allinone-2.35/xgraph-12.2/bitmaps/mark5.11
ns-allinone-2.35/xgraph-12.2/bitmaps/mark2.11
ns-allinone-2.35/xgraph-12.2/bitmaps/dot.11
ns-allinone-2.35/xgraph-12.2/bitmaps/gray
ns-allinone-2.35/xgraph-12.2/bitmaps/mark3.11
ns-allinone-2.35/xgraph-12.2/bitmaps/mark7.11
ns-allinone-2.35/xgraph-12.2/bitmaps/mark8.11
ns-allinone-2.35/xgraph-12.2/bitmaps/mark6.11
ns-allinone-2.35/xgraph-12.2/bitmaps/mark4.11
ns-allinone-2.35/xgraph-12.2/hard_devices.c
ns-allinone-2.35/xgraph-12.2/general.h
ns-allinone-2.35/xgraph-12.2/xgraph.out
ns-allinone-2.35/xgraph-12.2/CHANGES.html
ns-allinone-2.35/xgraph-12.2/st.h
ns-allinone-2.35/xgraph-12.2/missing
ns-allinone-2.35/xgraph-12.2/Makefile
ns-allinone-2.35/xgraph-12.2/stamp-h
ns-allinone-2.35/xgraph-12.2/xgraph.h
ns-allinone-2.35/xgraph-12.2/.deps/
ns-allinone-2.35/xgraph-12.2/.deps/ldraw.Po
ns-allinone-2.35/xgraph-12.2/.deps/tgif.Po
ns-allinone-2.35/xgraph-12.2/.deps/read.Po
ns-allinone-2.35/xgraph-12.2/.deps/hard_devices.Po
ns-allinone-2.35/xgraph-12.2/.deps/dialog.Po
ns-allinone-2.35/xgraph-12.2/.deps/alloc.Po
ns-allinone-2.35/xgraph-12.2/.deps/xgX.Po
ns-allinone-2.35/xgraph-12.2/.deps/st.Po
ns-allinone-2.35/xgraph-12.2/.deps/hpgl.Po
ns-allinone-2.35/xgraph-12.2/.deps/params.Po
ns-allinone-2.35/xgraph-12.2/.deps/ps.Po
ns-allinone-2.35/xgraph-12.2/.deps/xtb.Po
ns-allinone-2.35/xgraph-12.2/.deps/draw.Po
ns-allinone-2.35/xgraph-12.2/.deps/derivative.Po
```

4) After successful extraction, we use command 'sudo sed -i '137s/ .*/void eraseAll() { this->erase(baseMap::begin(), baseMap::end()); }' /opt/ns-allinone-2.35/ns-2.35/linkstate/ls.h'.

If it does not throw an error everything went fine.

```
anirbanac@lab3pc18-OptiPlex-3060: /opt/ns-allinone-2.35
ns-allinone-2.35/dei80211mr-1.1.4/src/Mac80211EventHandler.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/power_profile.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/arf.h
ns-allinone-2.35/dei80211mr-1.1.4/src/multirate-defaults.tcl
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/NSNode.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/Position.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/Makefile.in
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/Position.h
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/NSNode.h
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/Object.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/Makefile.am
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/DLList.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/DLList.h
ns-allinone-2.35/dei80211mr-1.1.4/src/adt/Object.h
ns-allinone-2.35/dei80211mr-1.1.4/src/rbar.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/Makefile.am
ns-allinone-2.35/dei80211mr-1.1.4/src/wireless-channelpa.h
ns-allinone-2.35/dei80211mr-1.1.4/src/phymodes.h
ns-allinone-2.35/dei80211mr-1.1.4/src/libinit.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/peerstatsdb_static.h
ns-allinone-2.35/dei80211mr-1.1.4/src/peerstats.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/test_power_profile.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/rbar.h
ns-allinone-2.35/dei80211mr-1.1.4/src/wireless-phymr.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/ra-snr.h
ns-allinone-2.35/dei80211mr-1.1.4/src/mac-802_11mr.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/Mac80211EventHandler.h
ns-allinone-2.35/dei80211mr-1.1.4/src/PER.h
ns-allinone-2.35/dei80211mr-1.1.4/src/power_profile.h
ns-allinone-2.35/dei80211mr-1.1.4/src/mac-timersmr.h
ns-allinone-2.35/dei80211mr-1.1.4/src/PER.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/papropagation.h
ns-allinone-2.35/dei80211mr-1.1.4/src/per_table_80211b_intersil_HFA3861B.tcl
ns-allinone-2.35/dei80211mr-1.1.4/src/rateadapter.h
ns-allinone-2.35/dei80211mr-1.1.4/src/mac-timersmr.cc
ns-allinone-2.35/dei80211mr-1.1.4/src/ra-snr.cc
ns-allinone-2.35/install
anirbanac@lab3pc18-OptiPlex-3060:/opt$ sudo sed -i '137s/ .*/void eraseAll() { this->erase(baseMap::begin()
/ls.h
```

5) Move to extracted directory using 'cd ns-allinone-2.35'.

Now we install NS-2 using 'sudo ./install'.

Everything will work fine if above steps are followed like I did.

```
anirbanac@lab3pc18-OptiPlex-3060:/opt$ sudo sed -i '137s/ .*/void eraseAll() { this->erase(baseMap::begin()
/ls.h
anirbanac@lab3pc18-OptiPlex-3060:/opt$ cd ns-allinone-2.35
anirbanac@lab3pc18-OptiPlex-3060:/opt/ns-allinone-2.35$ sudo ./install
=====
* Testing for Darwin (OS X) environment
=====
* Testing for Cygwin environment
=====
Cygwin not detected, proceeding with regular install.
=====
* Testing for FreeBSD environment
```

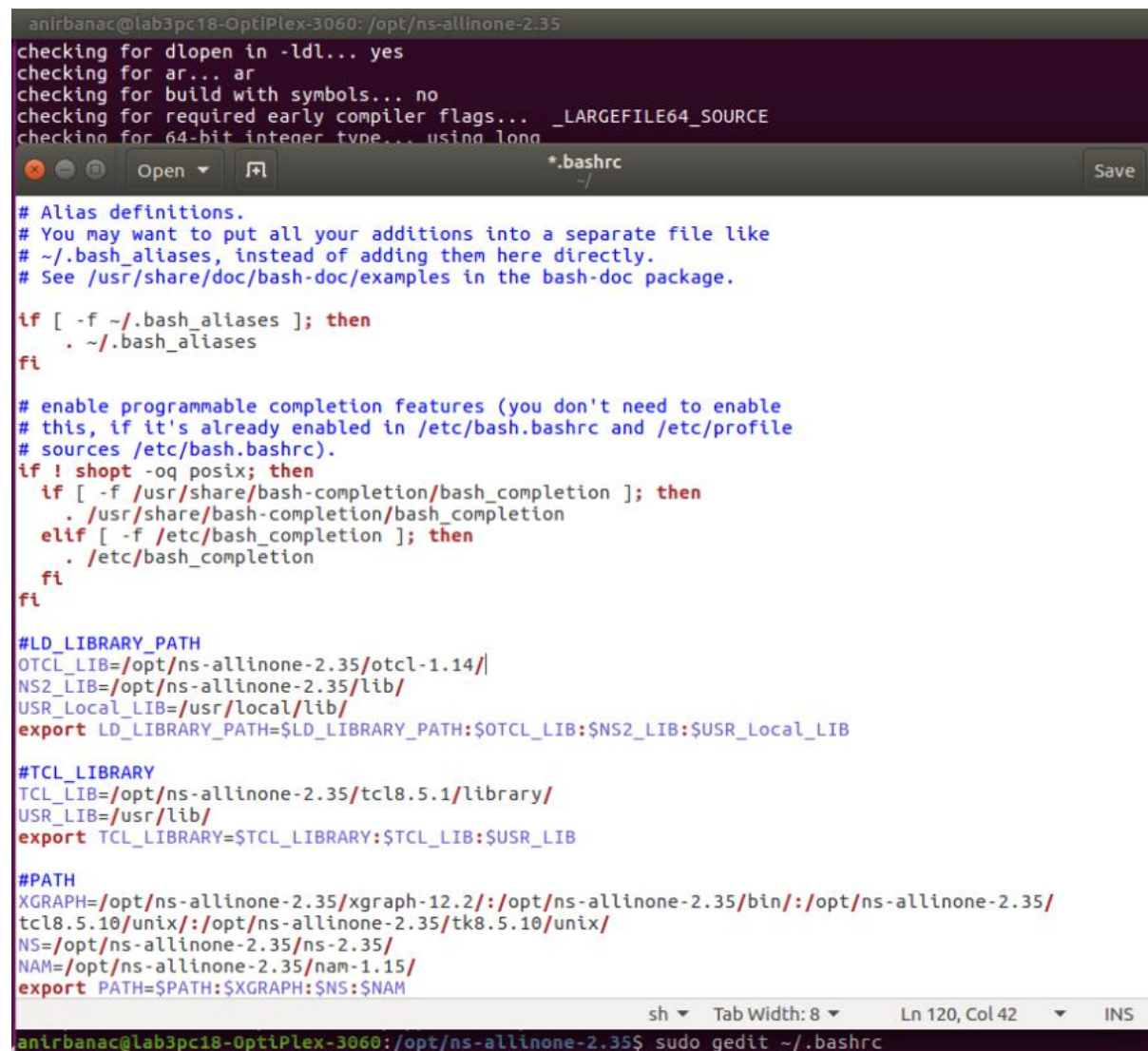

6) We need to make some changes in the bash file after installation so we edit the bash file using 'sudo gedit ~/.bashrc'.

We paste the following code after line 137 (last line of the file):

```
#LD_LIBRARY_PATH
OTCL_LIB=/opt/ns-allinone-2.35/otcl-1.14/
NS2_LIB=/opt/ns-allinone-2.35/lib/
USR_Local_LIB=/usr/local/lib/
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$OTCL_LIB:$NS2_LIB:$USR_Local_LIB

#TCL_LIBRARY
TCL_LIB=/opt/ns-allinone-2.35/tcl8.5.1/library/
USR_LIB=/usr/lib/
export TCL_LIBRARY=$TCL_LIBRARY:$TCL_LIB:$USR_LIB

#PATH
XGRAPH=/opt/ns-allinone-2.35/xgraph-12.2/:/opt/ns-allinone-2.35/bin:/opt/ns-allinone-2.35/
tcl8.5.10/unix:/opt/ns-allinone-2.35/tk8.5.10/unix/
NS=/opt/ns-allinone-2.35/ns-2.35/
NAM=/opt/ns-allinone-2.35/nam-1.15/
export PATH=$PATH:$XGRAPH:$NS:$NAM
```



```
anirbanac@lab3pc18-OptiPlex-3060: /opt/ns-allinone-2.35
checking for dlopen in -ldl... yes
checking for ar... ar
checking for build with symbols... no
checking for required early compiler flags... _LARGEFILE64_SOURCE
checking for 64-bit integer type... using long

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi

#LD_LIBRARY_PATH
OTCL_LIB=/opt/ns-allinone-2.35/otcl-1.14/
NS2_LIB=/opt/ns-allinone-2.35/lib/
USR_Local_LIB=/usr/local/lib/
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$OTCL_LIB:$NS2_LIB:$USR_Local_LIB

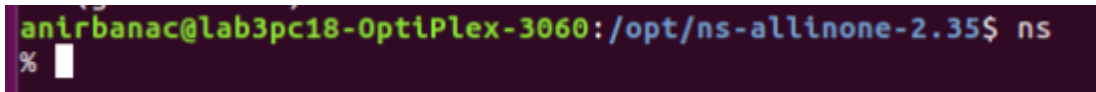
#TCL_LIBRARY
TCL_LIB=/opt/ns-allinone-2.35/tcl8.5.1/library/
USR_LIB=/usr/lib/
export TCL_LIBRARY=$TCL_LIBRARY:$TCL_LIB:$USR_LIB

#PATH
XGRAPH=/opt/ns-allinone-2.35/xgraph-12.2/:/opt/ns-allinone-2.35/bin:/opt/ns-allinone-2.35/
tcl8.5.10/unix:/opt/ns-allinone-2.35/tk8.5.10/unix/
NS=/opt/ns-allinone-2.35/ns-2.35/
NAM=/opt/ns-allinone-2.35/nam-1.15/
export PATH=$PATH:$XGRAPH:$NS:$NAM

sh Tab Width: 8 Ln 120, Col 42 INS
anirbanac@lab3pc18-OptiPlex-3060: /opt/ns-allinone-2.35$ sudo gedit ~/.bashrc
```

After writing/pasting the code we save the file.

7) All steps are completed and now we run NS-2 using 'ns' and we will see a '%' symbol if it is successfully installed.



```
anirbanac@lab3pc18-OptiPlex-3060:/opt/ns-allinone-2.35$ ns  
%
```

That's it, we are done!

➔ Made by Anirban

References : <https://digitalpadm.com/steps-to-install-ns2-network-simulator-on-ubuntu-16-04/>

[https://en.wikipedia.org/wiki/Ns_\(simulator\)](https://en.wikipedia.org/wiki/Ns_(simulator))