**Preparing**

first check Ubuntu version (it should 22.04)

$ lsb\_release -a

1- **Update & install important libraries**

$ sudo apt update

$ sudo apt upgrade

$ sudo apt install build-essential autoconf automake libxmu-dev gawk

$ sudo apt update

$ sudo apt upgrade

2- **Download NS2 and Decompress**

**Downloading :**

$ sudo apt update

$ sudo apt upgrade

$ cd Documents/

now download ns2.35s from the following url : (http://sourceforge.net/projects/nsnam/files/allinone/ns-allinone-2.35/ns-allinone-2.35.tar.gz/download)

**Decompress :**

$ tar zxvf ns-allinone-2.35.tar.gz

**3- Preparing to install gcc-4.8 and g++-4.8**

\* note go to main page

$ cd ../

$ sudo gedit /etc/apt/sources.list

\* note add this line in the end of file :

deb http://in.archive.ubuntu.com/ubuntu/ bionic main universe

$ sudo apt update

\* note the following single line maybe not required

$ sudo apt-key adv --keyserver keyserver.ubuntu.com --recv-keys 3B4FE6ACC0B21F32

$ sudo apt update

$ sudo apt upgrade

**4- install gcc-4.8 and g++-4.8**

$ sudo apt install gcc-4.8 g++-4.8

$ cd Documents/ns-allinone-2.35/ns-2.35/

$ gedit Makefile.in

\* note Replace the following lines (line 36 and line 37):

CC = @CC@

CPP = @CXX@

with :

CC = gcc-4.8

CPP = g++-4.8

$ cd ../

$ cd otcl-1.14/

$ gedit Makefile.in

\* note Replace the following in (line 7)

CC= @CC@

with :

CC= gcc-4.8

$ cd ../

$ cd nam-1.15/

$ gedit Makefile.in

\* note Replace the following lines (line 46 and line 47):

CC = @CC@

CPP = @CXX@

with :

CC = gcc-4.8

CPP = g++-4.8

$ cd ../

$ cd xgraph-12.2/

$ gedit Makefile.in

\* note Replace the following in (line 120 and line 123)

CC = @CC@

CPP = @CXX@

with :

CC = gcc-4.8

CPP = g++-4.8

$ cd ../

$ cd ns-2.35/linkstate/

$ gedit ls.h

\* note Replace the following in (line 137)

erase

with :

this->erase

$ cd ../../

**5- Install NS2**

\* note be sure you still in directory (ns-allinone-2.35/)

$ ./install

**6- After Installation**

\* note copy the lines appear in terminal :

/home/ali/Documents/ns-allinone-2.35/bin:/home/ali/Documents/ns-allinone-2.35/tcl8.5.10/unix:/home/ali/Documents/ns-allinone-2.35/tk8.5.10/unix

and also the line of LD\_LIBRERY\_PATH:

/home/ali/Documents/ns-allinone-2.35/otcl-1.14:/home/ali/Documents/ns-allinone-2.35/lib

\* note in the above line remove comma and space and replace with colon symbol (:)

otcl-1.14:/home/

\* note make sure to change (ali) in home/ali to same name on your ubuntu :

save both line in notepad or LiberOffice and go edit the following :

$ gedit /home/ali/.bashrc

\* note make sure to change (ali) in home/ali to same name on your ubuntu and make sure that path looks like the following :

export PATH=$PATH:/home/ali/Documents/ns-allinone-2.35/bin:/home/ali/Documents/ns-allinone-2.35/tcl8.5.10/unix:/home/ali/Documents/ns-allinone-2.35/tk8.5.10/unix

export LD\_LIBRARY\_PATH=/home/ali/Documents/ns-allinone-2.35/otcl-1.14:/home/ali/Documents/ns-allinone-2.35/lib

$ source /home/ali/.bashrc

**7- Test NS and NAM**

$ ns

ns-version

exit

$ nam

$ cd ns-2.35/

$ cd tcl/

$ cd ex/

$ ns wireless-mitf.tcl

$ nam wireless\_mitf.nam