CSE 322 ASSIGNMENT 3
Network Simulator 2
How to Configure and Work with NS2

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Chapter 1

Install NS2

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.

1.1 Download NS2

In the very beginning step,you have to download the **ns-allinone-2.35** packeage. You can download it from here : **NS2 Download**

The current version is 2.35.The downloaded file name should be : **ns-allinone-2.35.tar.gz**

1.2 Install Required Dependencies

NS2 requires gcc compiler,tcl,xgraph,make software. Try following bash command one by one:

```
$ sudo apt-get update
$ sudo apt-get dist-upgrade
$ sudo apt-get update
$ sudo apt-get gcc
$ sudo apt-get install build-essential autoconf automake
$ sudo apt-get install tcl8.5-dev tk8.5-dev
```

```
$ sudo apt-get install perl xgraph libx11-dev libxmu-dev
```

These command will install all necessary software.

1.3 Install Main Software

Move to file where you downlaod **ns-allinone-2.35.tar.gz**. Then try following bash command:

```
$ tar -zxvf ns-allinone-2.35.tar.gz
$ cd ns-allinone-2.35
$ ./install
```

You may get this error:

```
linkstate/ls.h: In instantiation of  void LsMap<Key, T>::eraseAll() [
linkstate/ls.cc:396:28:   required from here
linkstate/ls.h:137:58: error:   erase   was not declared in this scope
  void eraseAll() { erase(baseMap::begin(), baseMap::end()); }
```

In this case,you have to edit **ls.h** file.After running above command,we should find a folder named **ns-allinone-2.35**.In this folder,we can find a folder **ns-2.35**.In that folder,there is a folder named **linkstate**.You should find a file **ls.h** and edit line number 137.

From

```
void eraseAll() { erase(baseMap::begin(), baseMap::end()); }
```

To

```
void eraseAll() {baseMap::erase(baseMap::begin(), baseMap::end());
```

Then give this command again:

```
$ ./install
```

This time,ns2 will be installed without any error.

Now give this command in the terminal

```
$ gedit ~/.bashrc
```

After openning bashrc file,add this line in the file after the third line:(Remember,my ns-allinone-2.35 folder is in home directory.So all path should be changed according to the destination of your folder.)

```
#LD_LIBRARY_PATH
OTCL_LIB=~/ns-allinone-2.35/otcl-1.14
NS2_LIB=~/ns-allinone-2.35/lib
X11_LIB=/usr/X11R6/lib
USR_LOCAL_LIB=/usr/local/lib
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$OTCL_LIB:$NS2_LIB:$X11_LIB:$USR

# TCL_LIBRARY
TCL_LIB=~/ns-allinone-2.35/tcl8.5.10/library
USR_LIB=/usr/lib
export TCL_LIBRARY=$TCL_LIB:$USR_LIB

# PATH
XGRAPH=~/ns-allinone-2.35/bin:~/ns-allinone-2.35/tcl8.5.10/unix:~//ns-
NS=~/ns-allinone-2.35/ns-2.35/
NAM=~/ns-allinone-2.35/nam-1.15/
PATH=$PATH:$XGRAPH:$NS:$NAM
```

Save the file and close it.

Give the following command in terminal:

```
$ source ~/.bashrc
$ ns
```

If you get % sign,ns2 is successfully installed.

You can check the validity,by typing the following command:(assuming that the terminal is opend in ns-allinone-2.35/ns-2.35)

```
$ ./validate
```

It may take about 30 minutes and find that some tests fail.In that case,try this command:

```
$ sudo apt-get install libx11-dev xorg-dev libxmu-dev libperl4-corelib
```

It will install missing packege.

Chapter 2

Running Sample File