

DESI B. TAMBUNAN	161402005
SONIA ELISA TELAUMBANUA	161402045
NOVALINA SIMBOLON	161402077
CHYNTIA CLAUDIA	161402101
TIRZA PRISKILA K. SIBUEA	161402110

MiniNAM

1. git clone <https://github.com/uccmis/MiniNAM.git>
2. tree -L 1 -d

```
mininet@mininet-vm: ~
c0
*** Stopping 2 links
**
*** Stopping 1 switches
s1
*** Stopping 2 hosts
h1 h2
*** Done
completed in 223.185 seconds
mininet@mininet-vm:~$ git clone https://github.com/uccmis/MiniNAM.git
fatal: destination path 'MiniNAM' already exists and is not an empty directory.
mininet@mininet-vm:~$ tree -L 1 -d
.
├── loxigen
├── MiniNAM
├── mininet
├── oflops
├── oftest
├── openflow
└── pox

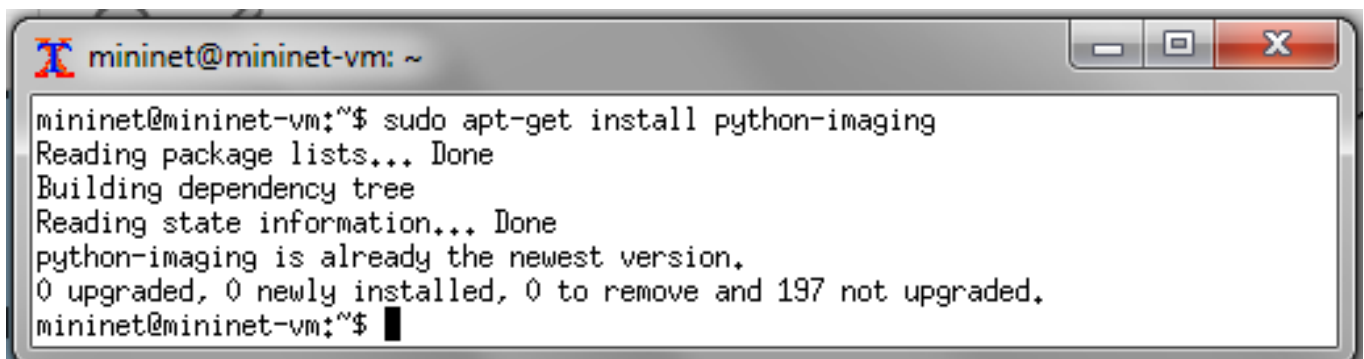
7 directories
mininet@mininet-vm:~$
```

3. tree MiniNAM

```
mininet@mininet-vm: ~
7 directories
mininet@mininet-vm:~$ tree MiniNAM
MiniNAM
├── conf.config
├── Examples
│   ├── LoadBalancer
│   │   ├── install.sh
│   │   ├── MiniNAM.py
│   │   ├── paping
│   │   └── README.md
│   └── NAT
│       ├── badNAT.py
│       ├── conf.config
│       ├── goodNAT.py
│       ├── MiniNAM.py
│       └── README.md
├── Routing
│   ├── MiniNAM.py
│   ├── README.md
│   ├── simple_switch_13.py
│   ├── simple_switch_stp_13.py
│   └── spanning_tree.py
├── LICENSE
├── MiniNAM.py
└── README.md

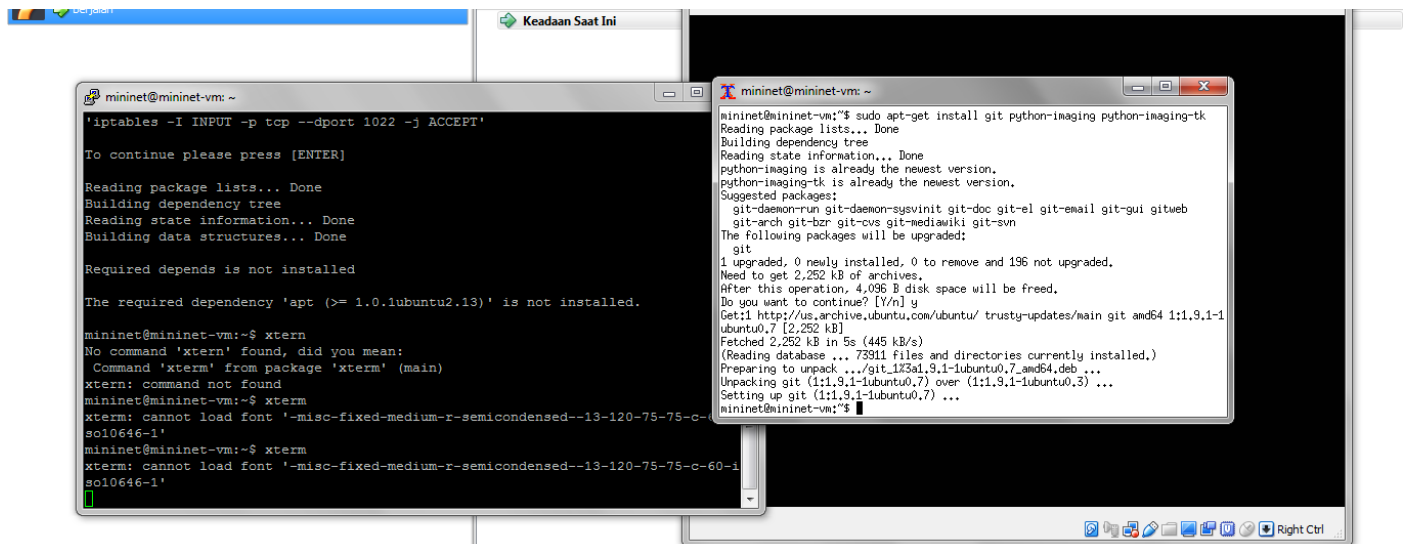
4 directories, 18 files
mininet@mininet-vm:~$
```

4. `sudo apt-get install python-imaging`



```
mininet@mininet-vm: ~  
mininet@mininet-vm:~$ sudo apt-get install python-imaging  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
python-imaging is already the newest version.  
0 upgraded, 0 newly installed, 0 to remove and 197 not upgraded.  
mininet@mininet-vm:~$
```

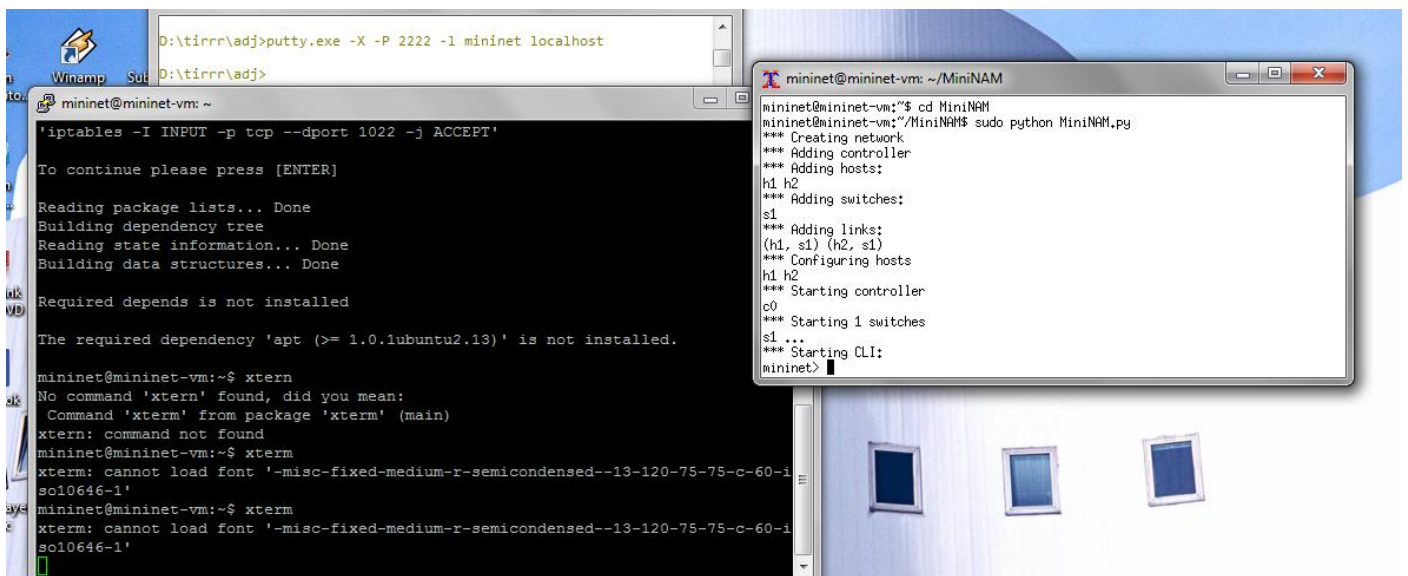
5. `sudo apt-get install git python-imaging python-imaging-tk`



```
mininet@mininet-vm: ~  
'iptables -I INPUT -p tcp --dport 1022 -j ACCEPT'  
To continue please press [ENTER]  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
Building data structures... Done  
Required depends is not installed  
The required dependency 'apt (>= 1.0.1ubuntu2.13)' is not installed.  
mininet@mininet-vm:~$ xterm  
No command 'xterm' found, did you mean:  
  Command 'xterm' from package 'xterm' (main)  
xterm: command not found  
mininet@mininet-vm:~$ xterm  
xterm: cannot load font '-misc-fixed-medium-r-semicondensed--13-120-75-75-c-60-i  
so10646-1'  
mininet@mininet-vm:~$ xterm  
xterm: cannot load font '-misc-fixed-medium-r-semicondensed--13-120-75-75-c-60-i  
so10646-1'  
mininet@mininet-vm:~$  
mininet@mininet-vm:~$ sudo apt-get install git python-imaging python-imaging-tk  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
python-imaging is already the newest version.  
python-imaging-tk is already the newest version.  
Suggested packages:  
  git-daemon-run git-daemon-sysvinit git-doc git-el git-email git-gui gitweb  
  git-arch git-bzr git-cvs git-mediawiki git-svn  
The following packages will be upgraded:  
  git  
1 upgraded, 0 newly installed, 0 to remove and 196 not upgraded.  
Need to get 2,252 kB of archives.  
After this operation, 4,096 B disk space will be freed.  
Do you want to continue? [Y/n] y  
Get:1 http://us.archive.ubuntu.com/ubuntu/ trusty-updates/main git amd64 1:1.9.1-1  
ubuntu0.7 [2,252 kB]  
Fetched 2,252 kB in 5s (445 kB/s)  
(Reading database ... 73911 files and directories currently installed.)  
Preparing to unpack .../git_1:1.9.1-1ubuntu0.7_amd64.deb ...  
Unpacking git (1:1.9.1-1ubuntu0.7) over (1:1.9.1-1ubuntu0.3) ...  
Setting up git (1:1.9.1-1ubuntu0.7) ...  
mininet@mininet-vm:~$
```

6. `cd MiniNAM`

7. `sudo python MiniNAM.py`



```
mininet@mininet-vm: ~  
'iptables -I INPUT -p tcp --dport 1022 -j ACCEPT'  
To continue please press [ENTER]  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
Building data structures... Done  
Required depends is not installed  
The required dependency 'apt (>= 1.0.1ubuntu2.13)' is not installed.  
mininet@mininet-vm:~$ xterm  
No command 'xterm' found, did you mean:  
  Command 'xterm' from package 'xterm' (main)  
xterm: command not found  
mininet@mininet-vm:~$ xterm  
xterm: cannot load font '-misc-fixed-medium-r-semicondensed--13-120-75-75-c-60-i  
so10646-1'  
mininet@mininet-vm:~$ xterm  
xterm: cannot load font '-misc-fixed-medium-r-semicondensed--13-120-75-75-c-60-i  
so10646-1'  
mininet@mininet-vm:~$  
mininet@mininet-vm:~$ cd MiniNAM  
mininet@mininet-vm:~/MiniNAM$ sudo python MiniNAM.py  
*** Creating network  
*** Adding controller  
*** Adding hosts:  
h1 h2  
*** Adding switches:  
s1  
*** Adding links:  
(h1, s1) (h2, s1)  
*** Configuring hosts  
h1 h2  
*** Starting controller  
c0  
*** Starting 1 switches  
s1 ...  
*** Starting CLI:  
mininet>
```

8. h1 ping -c2 h2

MiniNAM

File Edit Run Help

Interfaces

Interface	Linked To	Node Type	IP Address	MAC Address	TXP	RXP	TXB	RXB
h1-eth0	s1-eth1	Host	10.0.0.1	86:30:c1:f1:6b:ba	4	4	392	392
h2-eth0	s1-eth2	Host	10.0.0.2	de:1c:77:76:90:4d	4	4	392	392
s1-eth1	h1-eth0	OVSwitch	None	e2:6b:c7:f8:fb:36	4	4	392	392
s1-eth2	h2-eth0	OVSwitch	None	22:15:28:cf:e4:ac	4	4	392	392

mininet@mininet-vm: ~/MiniNAM

```

PING 10.0.0.2 (10.0.0.2) 56(84) bytes of data.
64 bytes from 10.0.0.2: icmp_seq=1 ttl=64 time=6.70 ms
64 bytes from 10.0.0.2: icmp_seq=2 ttl=64 time=1.82 ms

--- 10.0.0.2 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1002ms
rtt min/avg/max/mdev = 1.827/4.264/6.701/2.437 ms
mininet>

```

ip	RXB	dgw	mac	link	node	TXP	type	interface	RXP	TXB
			s1-eth1	h1	Host	4	4	h1-eth0	10.0.0.1	39
286:30:c1:f1:6b:ba			s1-eth2	h2	Host	4	4	h2-eth0	10.0.0.2	39
2de:1c:77:76:90:4d			h1-eth0	s1	OVSwitch	4	4	s1-eth1	None	39
2e2:6b:c7:f8:fb:36			h2-eth0	s1	OVSwitch	4	4	s1-eth2	None	39
222:15:28:cf:e4:ac										

```

graph TD
    h1[h1] --- s1[s1]
    h2[h2] --- s1[s1]
    s1[s1] -.- c0[c0]

```