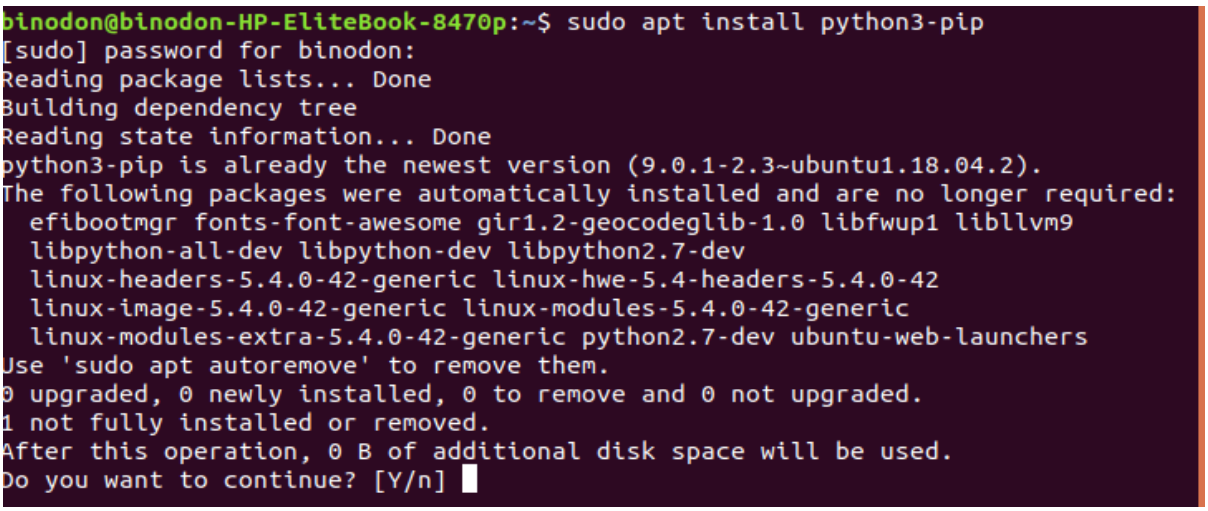
Lab Report No: 08
Lab Report Name: Software Defined Network (Mininet with Ryu Controller)
Name : Binodon
ID : IT-17046

Objective:-
In this lab we will learn about installation process of Software Defined Network (Mininet with Ryu Controller).First we will install python pip3.Using pip3 we install ryu controller then we install Mininet .We will apply some code in this platfrom too.

Install Ryu Controller

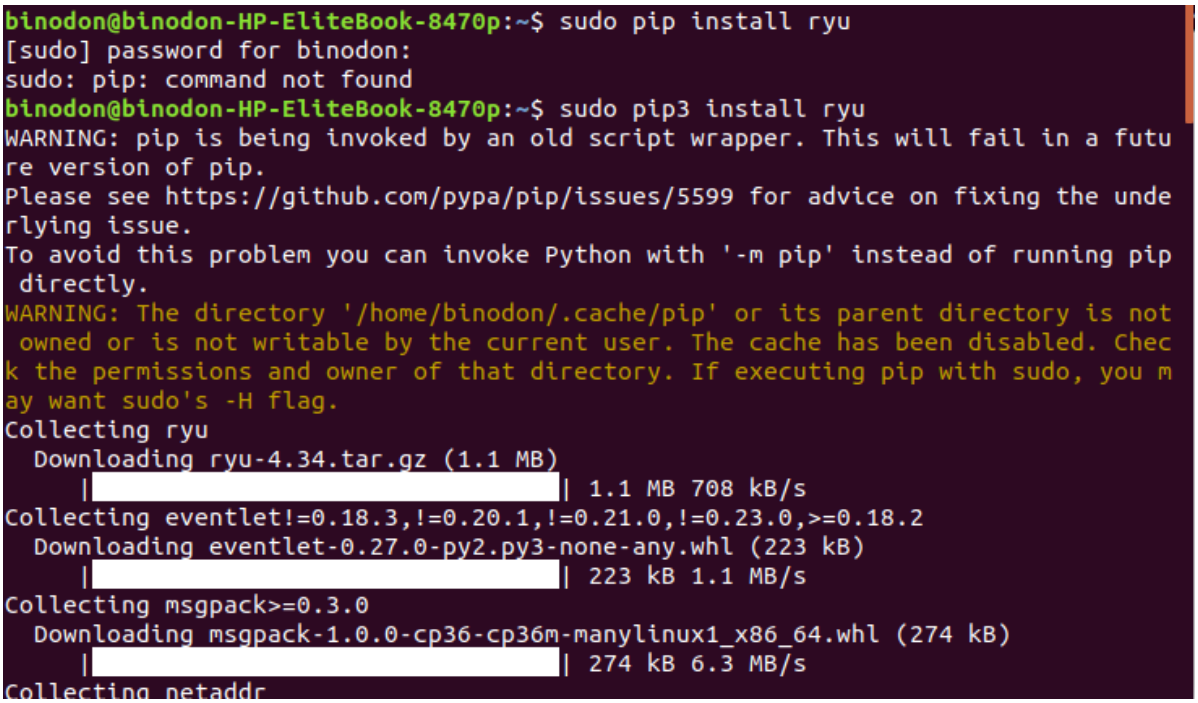
1.To install Ryu Controller Firstly,We need to install Python in our system

```
$ sudo apt install python3-pip
```



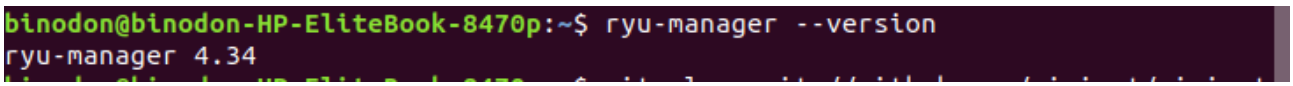
2.Now we may install Ryu Controller by following instruction

```
$ sudo pip3 install ryu
```



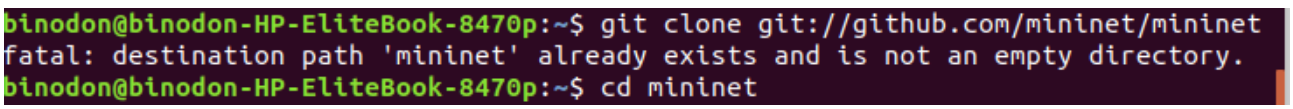
3.After Completing installation Now We can check the version:

```
$ ryu-manager --version
```



Install Mininet:

1.`$ git clone git://github.com/mininet/mininet`



Mininet Already exists in my system

2.`$ git tag`

```
binodon@binodon-HP-EliteBook-8470p:~/mininet$ git tag
1.0.0
2.0.0
2.1.0
2.1.0p1
2.1.0p2
2.2.0
2.2.1
2.2.2
2.3.0d3
2.3.0d4
2.3.0d5
2.3.0d6
cs244-spring-2012-final
```

3.`$ git checkout -b 2.2.2 2.2.2`

```
binodon@binodon-HP-EliteBook-8470p:~/mininet$ git checkout -b 2.2.2 2.2.2
Switched to a new branch '2.2.2'
binodon@binodon-HP-EliteBook-8470p:~/mininet$ mkdir my_mininet
```

Run Ryu Controller

`$ ryu-manager ryu.app.simple_switch`

```
binodon@binodon-HP-EliteBook-8470p:~/mininet$  ryu-manager ryu.app.simple_switch
loading app ryu.app.simple_switch
loading app ryu.controller.ofp_handler
instantiating app ryu.app.simple_switch of SimpleSwitch
instantiating app ryu.controller.ofp_handler of OFPHandler
```

Run Mininet topology

`$ sudo mn --topo single,3 --mac --switch ovsk --controller remote`

```
binodon@binodon-HP-EliteBook-8470p:~/mininet$ sudo mn --topo single,3 --mac --sw
itch ovsk --controller remote
*** Creating network
*** Adding controller
Unable to contact the remote controller at 127.0.0.1:6653
Unable to contact the remote controller at 127.0.0.1:6633
Setting remote controller to 127.0.0.1:6653
*** Adding hosts:
h1 h2 h3
*** Adding switches:
s1
*** Adding links:
(h1, s1) (h2, s1) (h3, s1)
*** Configuring hosts
h1 h2 h3
*** Starting controller
c0
*** Starting 1 switches
s1 ...
*** Starting CLI:
mininet>
```

Application:

```
mininet> pingall
```

```
mininet> pingall
*** Ping: testing ping reachability
h1 -> X X
h2 -> X X
h3 -> X X
*** Results: 100% dropped (0/6 received)
mininet>
```

Conclusion: We did the installation of both Ryu controller and Mininet successfully and apply some instruction too.To do this lab we did not face any problem.