Formation of a network using Zodiac FX switch

Group – 3

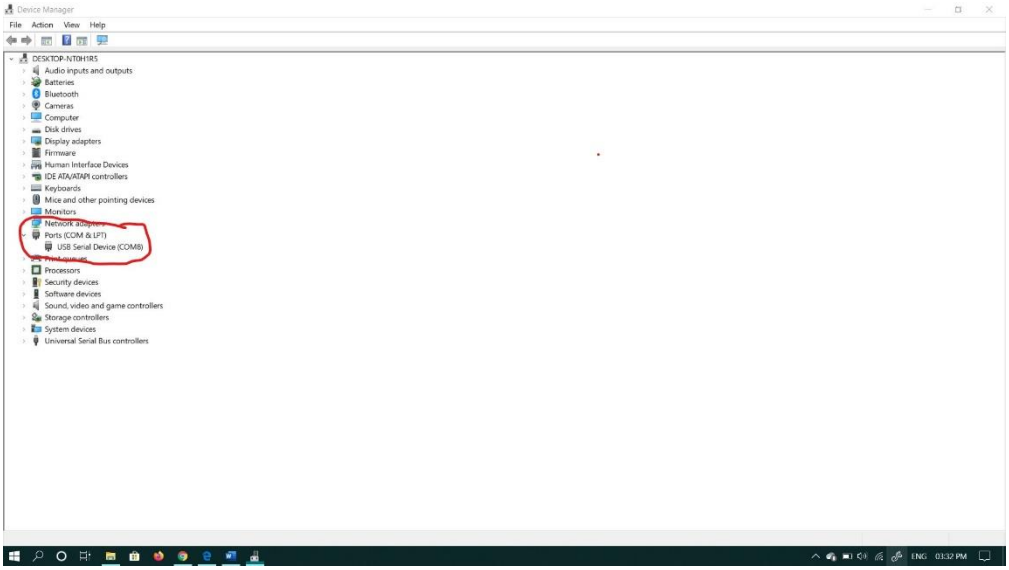
1. Dipayan Deb , 2019H1030015G, h20190015@goa.bits-pilani.ac.in,
2. Kumar Anand, 2019H1030500G, h20190500@goa.bits-pilani.ac.in,
3. Bharath S, 2019H1030017G, h20190017@goa.bits-pilani.ac.in,
4. Ghodke Pratik Pravin, 2019H1030558G, h20190558@goa.bits-pilani.ac.in

IP assigned to computers

1. Controller – 192.168.1.3
2. H1 – 192.168.1.4
3. H2 – 192.168.1.5
4. H3 – 192.168.1.6

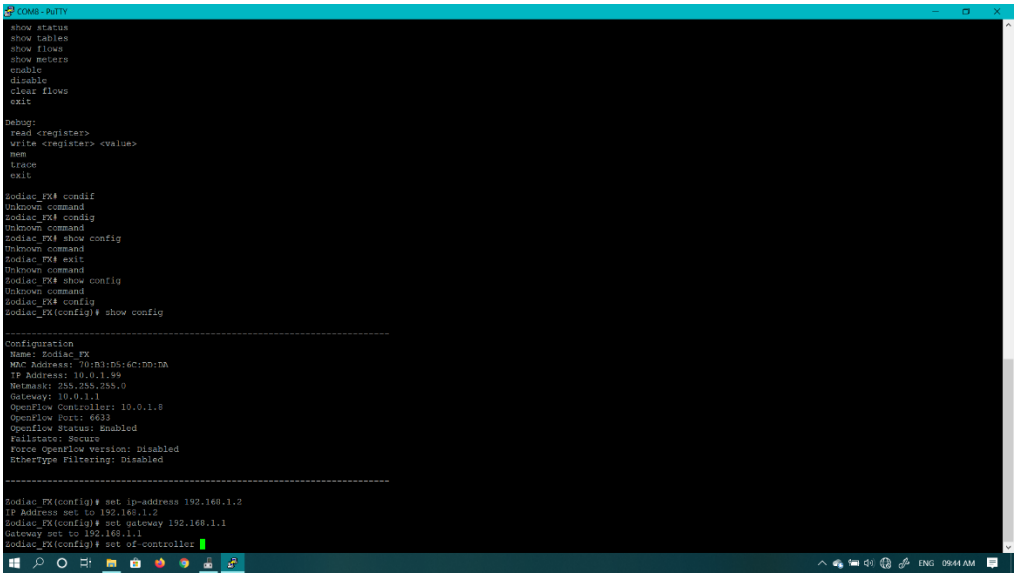
Steps to set up the switch

1. The switch has a micro usb port. We connect a computer with the provided cable to the micro usb port.
2. Once the switch is connected it appears under device manager as COM ports and LPT. From there we see the com port number
3. We then use Putty client on windows in serial mode to connect to the switch using the com port
4. Once we connect, we set the ip address of switch , ip address of gateway, ip address of controller so that all of them are in the same network.



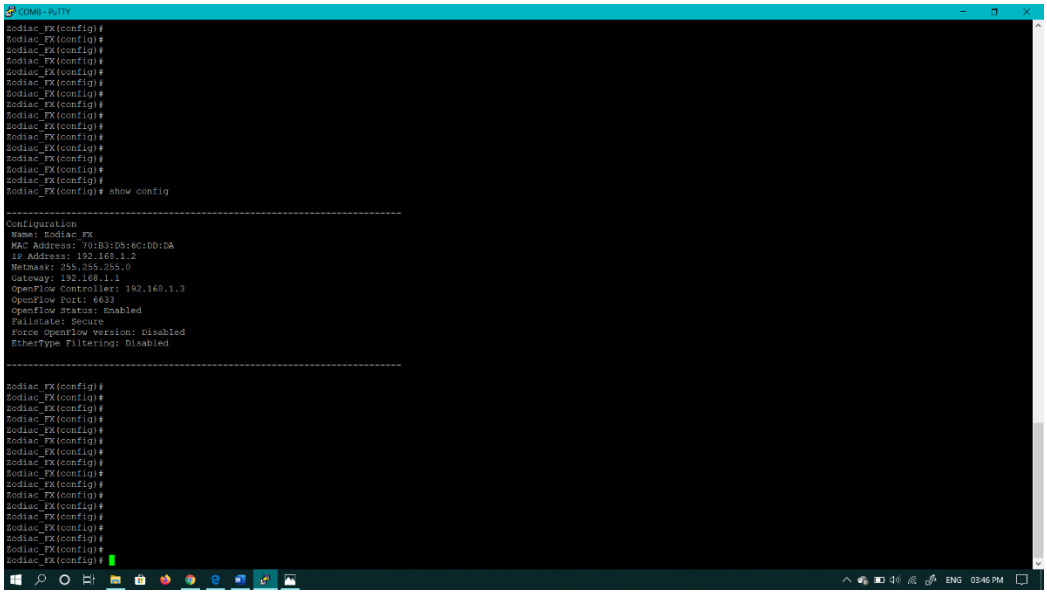
5. We use the following commands

set ip-address 192.168.1.2
set gateway 192.168.1.1
set of-controller 192.168.1.3



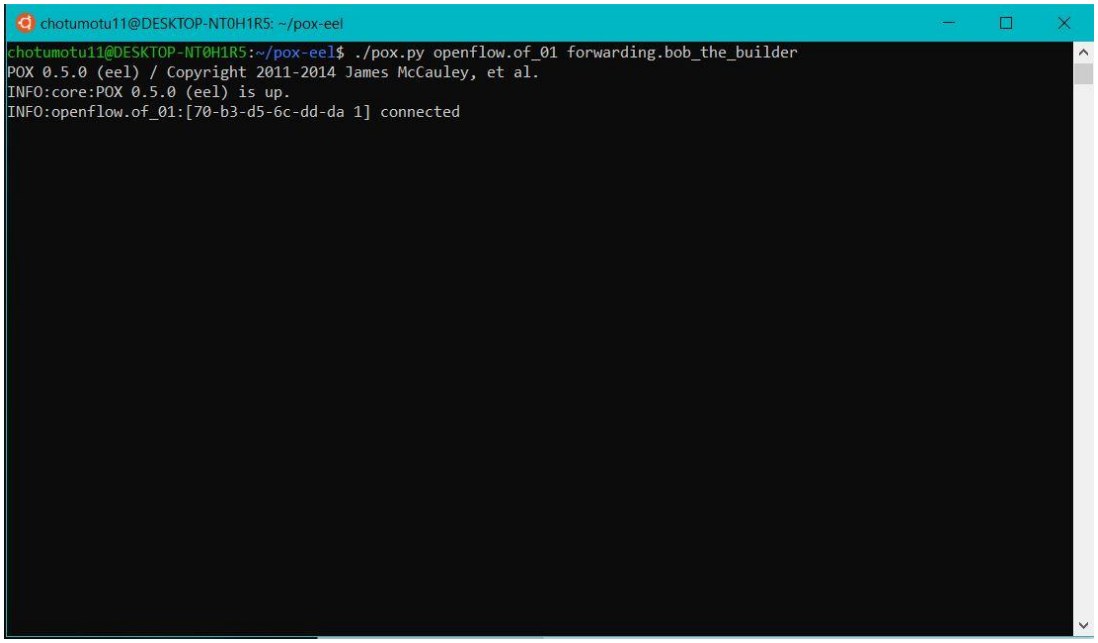
6. The above shows the photo before configuration.

7. The photo after configuration is shown before.

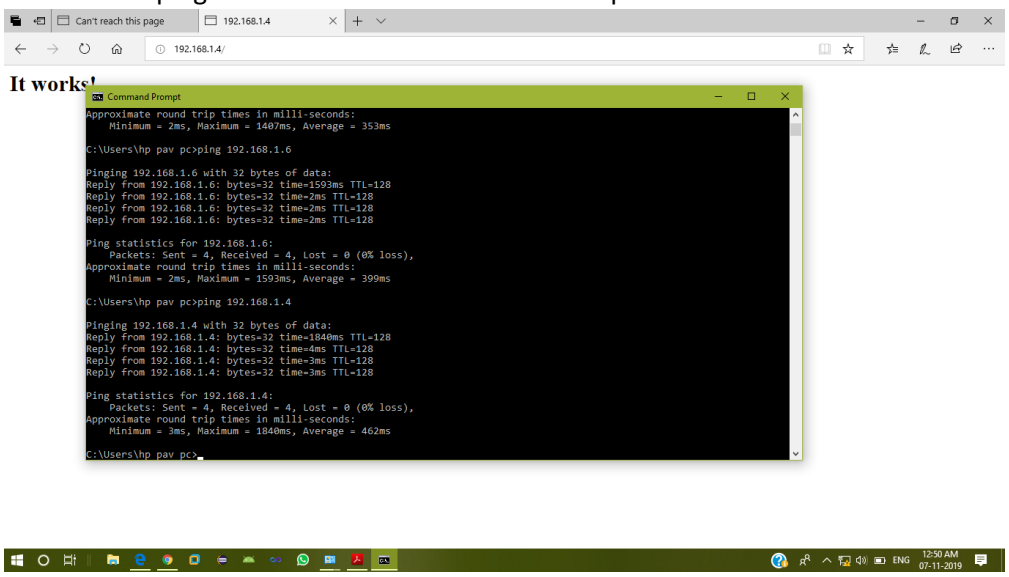


8. Now we connect the lan cable to the computer running the controller and the native port of the switch.
9. Now we open the network settings of the controller computer and then set the ip configuration manually to the controller ip address.
10. Similarly we set the ip address of the 3 other computers manually. We ensure that all the devices are in the same network.

11. Now we run the controller software. Here we use POX. We store our code in the file "bob_the_builder.py" file in the forwarding folder of POX.



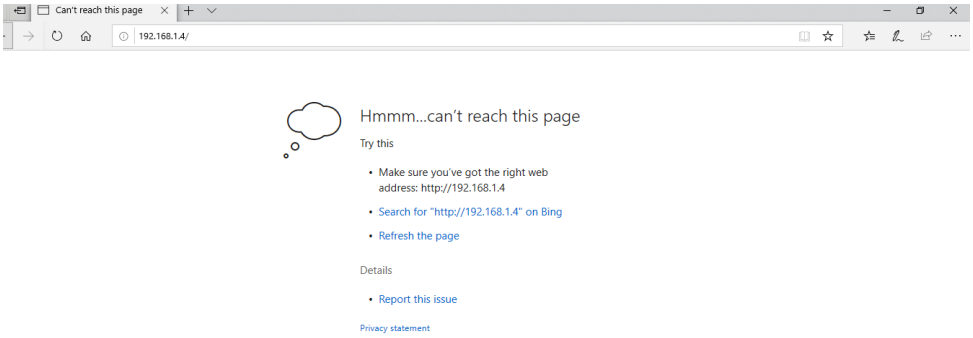
12. Then use the command "./pox.py openflow.of_01 forwarding.bob_the_builder"
13. As is show in the pic the controller immediately connects to the switch.
14. We assume that the computer connected to the port 1 is h1, to the port 2 is h2 and to the port 3 is h3.
15. We are able to ping each computer from all other computers. But h3 is unable to access http from h1.
16. Below is the ping from h2. It also shows that h1 http is accessible.



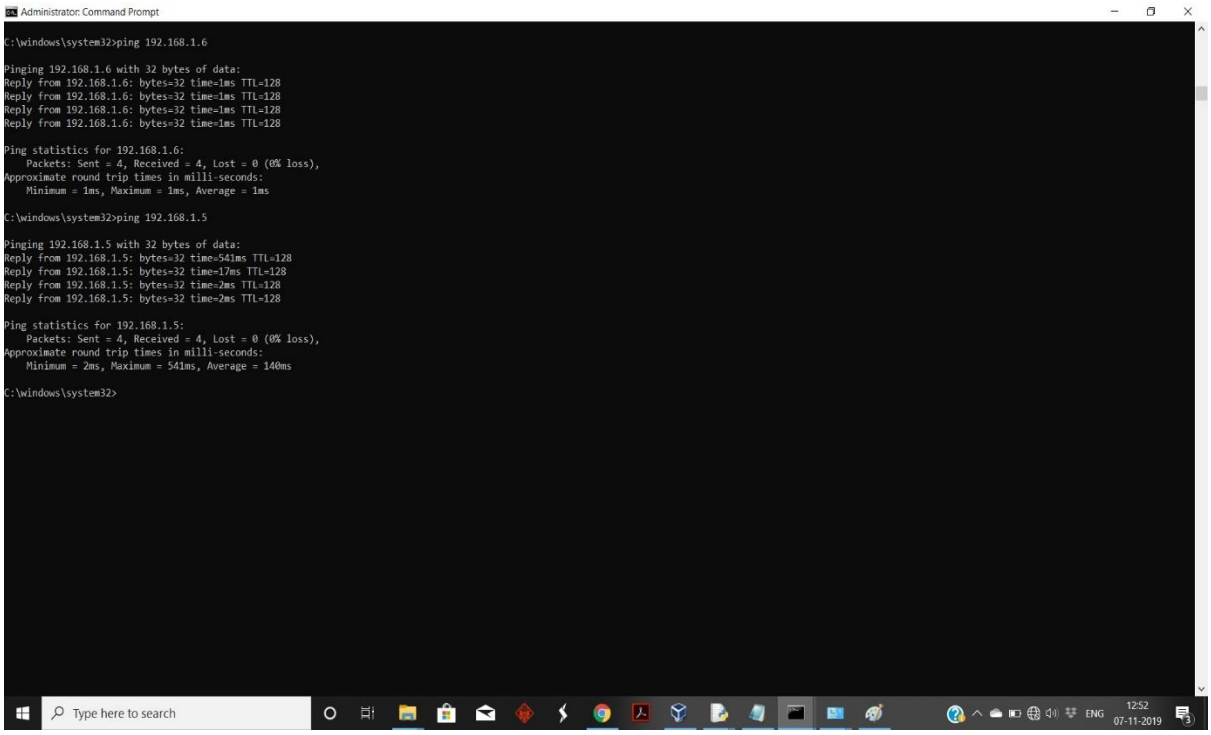
17. Below is the ping from h3.

```
C:\Users\KUMAR ANAND>ping 192.168.1.4

Pinging 192.168.1.4 with 32 bytes of data:
Reply from 192.168.1.4: bytes=32 time=2023ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 2023ms, Average = 506ms

C:\Users\KUMAR ANAND>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:
Reply from 192.168.1.5: bytes=32 time=1167ms TTL=128
Reply from 192.168.1.5: bytes=32 time=1ms TTL=128
Reply from 192.168.1.5: bytes=32 time=2ms TTL=128
Reply from 192.168.1.5: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1167ms, Average = 293ms
```

18. Below shows that h1 is not accessible for h3 over http.



19. Below shows h1 can ping all other.

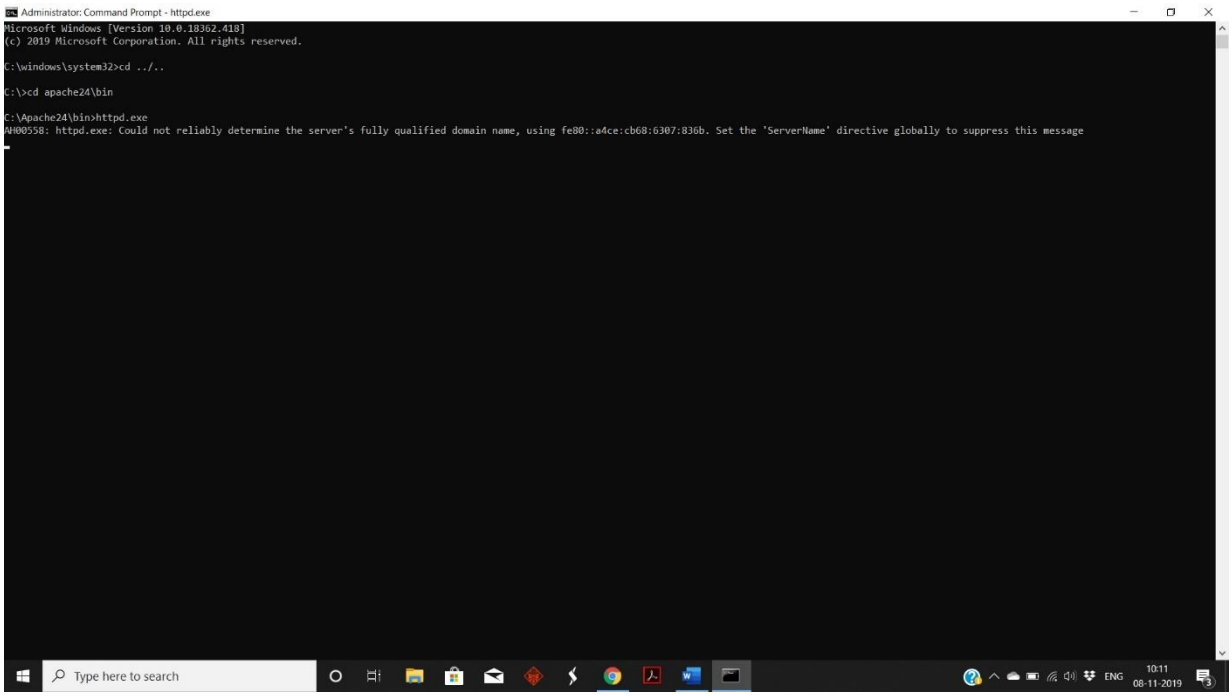


Instructions used to running apache server on h1

1. Download apache from https://www.apachelounge.com/download/. Extract the zip file to the directory **C:\Apache24**.

2. Open the command prompt as administrator and change to the bin directory of the extracted directory i.e. **C:\Apache24\bin**.

3. Type **httpd.exe** and press Enter.



4. Open the browser and type **http://localhost**