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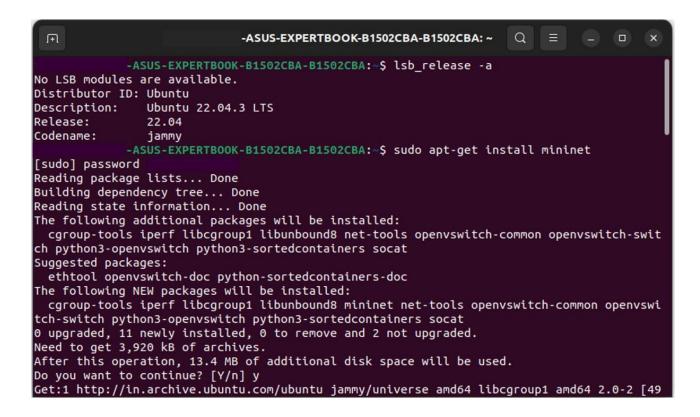
Department of Computer Science and Engineering
Data Science



Academic Year: 2023-24 Semester: V Class /Branch: TE-DS Subject: WCN

Experiment No. 10

1. Aim: To simulate Software Defined Network using Mininet.





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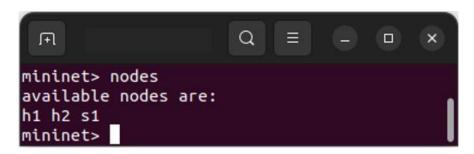
To know the version of Mininet



Next, verify the installation by issuing the following command:

```
-ASUS-EXPERTBOOK-...
 F
                                        Q
                                                            ×
                                                       -ASUS-EXPERTBOOK-B1502CBA-B1502CBA:~$ sudo mn
*** No default OpenFlow controller found for default switch!
*** Falling back to OVS Bridge
*** Creating network
*** Adding controller
*** Adding hosts:
h1 h2
*** Adding switches:
s1
*** Adding links:
(h1, s1) (h2, s1)
*** Configuring hosts
h1 h2
*** Starting controller
*** Starting 1 switches
*** Starting CLI:
mininet>
```

The command to display the nodes present in the network is:



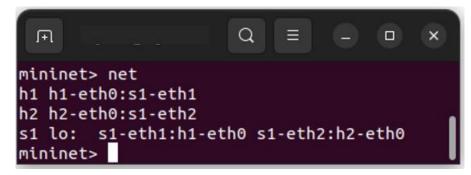


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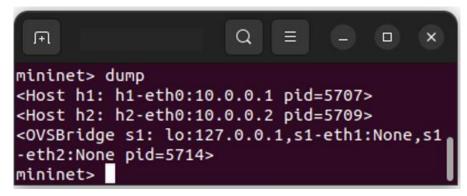
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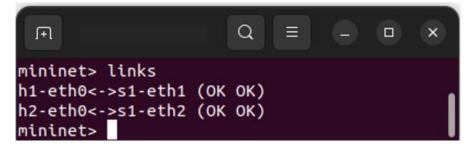
The command to display and list the links present in the network is:



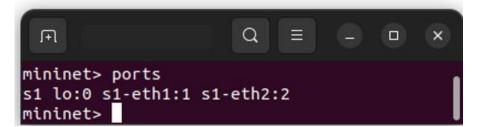
The command to display the IP addresses and the process IDs of the nodes is:



• The command to display the links of the network is:



The command to display the ports used in the network is:



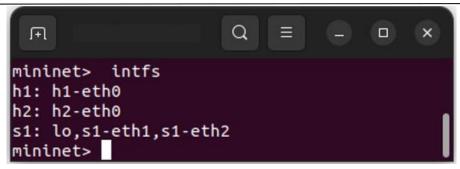
The command to display the interfaces in the network is:



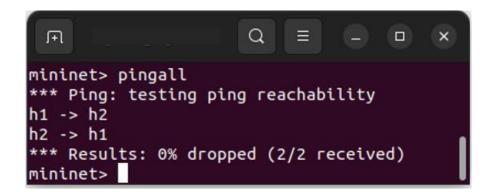
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The command to test the connectivity among hosts is:



This command will make each host in the network ping every other host in the network. In the network that we have, h1 will ping h2, and h2 will ping h1.

 The command to test the connectivity among hosts by giving all details including RTT (round trip time) etc., is:

```
-ASUS-EXPERTBOOK-B15... Q = - - ×

mininet> pingallfull

*** Ping: testing ping reachability

h1 -> h2

h2 -> h1

*** Results:

h1->h2: 1/1, rtt min/avg/max/mdev 0.507/0.507/0.507/0.000 ms

h2->h1: 1/1, rtt min/avg/max/mdev 0.043/0.043/0.043/0.000 ms

mininet>
```

• The command to ping a specific host to a targeted host is: (undergoes to execute infinite pings, to stop click CTRL + C.



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```
## -ASUS-EXPERTBOOK-B150... Q = - - ×

mininet> h1 ping h2

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=0.468 ms

64 bytes from 10.0.0.2: icmp_seq=2 ttl=64 time=0.109 ms

64 bytes from 10.0.0.2: icmp_seq=3 ttl=64 time=0.112 ms

^C

--- 10.0.0.2 ping statistics ---

3 packets transmitted, 3 received, 0% packet loss, time 2056ms

rtt min/avg/max/mdev = 0.109/0.229/0.468/0.168 ms

mininet>
```

 The command to ping a specific host to a targeted host with specific number of pings is:

The command to display the address information of the nodes is:



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```
mininet> h1 ifconfig
h1-eth0: flags=4163<br/>
inet 10.0.0.1 netmask 255.0.0.0 broadcast 10.255.255.255 inet6 fe80::addc:95ff:feaa:33b4 prefixlen 64 scopeid 0x20ink ether a6:dc:95:aa:33:b4 txqueuelen 1000 (Ethernet)
RX packets 102 bytes 10662 (10.6 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 57 bytes 4702 (4.7 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<uP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>loop txqueuelen 1000 (Local Loopback)
RX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

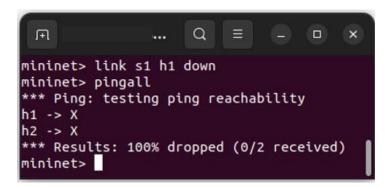
mininet> h2 ifconfig
h2-eth0: flags=4163<uP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 10.0.0.2 netmask 255.0.0.0 broadcast 10.255.255.255
inet6 fe80::7892:36fff:fe90:66ff prefixlen 64 scopeid 0x20inet 17.0.0.1 netmask 255.0.0.0 broadcast 10.255.255.255
inet6 fe80::7892:36fff:fe90:66ff prefixlen 64 scopeid 0x20ink> ether 7a:92:36:90:66:ff txqueuelen 1000 (Ethernet)
RX packets 102 bytes 10662 (10.6 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 57 bytes 4702 (4.7 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<uP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet 6::1 prefixlen 128 scopeid 0x10<host>loop txqueuelen 1000 (Local Loopback)
RX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

The command to down a link is:



Ping now fails to connect:



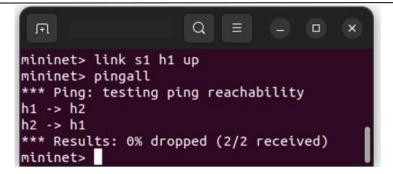
The command to activate a link is:



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The command Help:



The command Exit:



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