

1. Pingall: This should succeed

```
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 h3 h4
h2 -> h1 h3 h4
h3 -> h1 h2 h4
h4 -> h1 h2 h3
*** Results: 0% dropped (12/12 received)
```

Pingall succeeds, because pingall is a ICMP traffic action and the lab states to accept any ICMP packets. If the connection between hx to hy was dropped or blocked, it would have shown with a “X”, this shows our rule to accept any ICMP packets worked.

2. DPctl dump-flows

```
mininet> dpctl dump-flows
*** s1 -----
NXST_FLOW reply (xid=0x4):
  cookie=0x0, duration=5.017s, table=0, n_packets=1, n_bytes=98, idle_timeout=15,
  hard_timeout=30, idle_age=5, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_d
st=00:00:00:00:00:04,nw_src=10.0.1.10,nw_dst=10.0.1.40,nw_tos=0,icmp_type=8,icmp
_code=0 actions=FL00D
  cookie=0x0, duration=5.044s, table=0, n_packets=1, n_bytes=98, idle_timeout=15,
  hard_timeout=30, idle_age=5, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_d
st=00:00:00:00:00:02,nw_src=10.0.1.10,nw_dst=10.0.1.20,nw_tos=0,icmp_type=8,icmp
_code=0 actions=FL00D
  cookie=0x0, duration=5.014s, table=0, n_packets=1, n_bytes=98, idle_timeout=15,
  hard_timeout=30, idle_age=5, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_d
st=00:00:00:00:00:01,nw_src=10.0.1.40,nw_dst=10.0.1.10,nw_tos=0,icmp_type=0,icmp
_code=0 actions=FL00D
  cookie=0x0, duration=4.96s, table=0, n_packets=1, n_bytes=98, idle_timeout=15,
  hard_timeout=30, idle_age=4, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_d
st=00:00:00:00:00:03,nw_src=10.0.1.20,nw_dst=10.0.1.30,nw_tos=0,icmp_type=0,icmp
_code=0 actions=FL00D
  cookie=0x0, duration=4.95s, table=0, n_packets=1, n_bytes=98, idle_timeout=15,
  hard_timeout=30, idle_age=4, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_d
st=00:00:00:00:00:04,nw_src=10.0.1.30,nw_dst=10.0.1.40,nw_tos=0,icmp_type=8,icmp
_code=0 actions=FL00D
```

Dpctl dump-flows succeeds, this shows a few entries of flow replies, if there were no flows, it would have not shown anything. This displays all the rules/flows installed on the switch. There were more flows than what is shown, I had cut part of it to show some visibility of my command dump flows, any more screenshots I thought would have been unnecessary. However there are approximately 40 flows in the output.

### 3. Iperf

```
mininet> iperf h1 h3
*** Iperf: testing TCP bandwidth between h1 and h3
*** Results: ['26.6 Gbits/sec', '26.6 Gbits/sec']
mininet> iperf h3 h1
*** Iperf: testing TCP bandwidth between h3 and h1
*** Results: ['27.6 Gbits/sec', '27.6 Gbits/sec']
```

Iperf succeeds, iperf tests the TCP bandwidth between  $h_x$  and  $h_y$ , in this lab, we want TCP packets to be accepted only between  $h_1$  and  $h_3$  and vice-versa. To ensure that TCP packets would only be sent to those two hosts, I attempted to do iperf  $h_1$  to  $h_4$ , in which it stood idle for a lengthy period of time, meaning  $h_1$  can not make a connection to  $h_4$  and packets were continuously dropped.