1.pingall


```
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)
mininet>
```
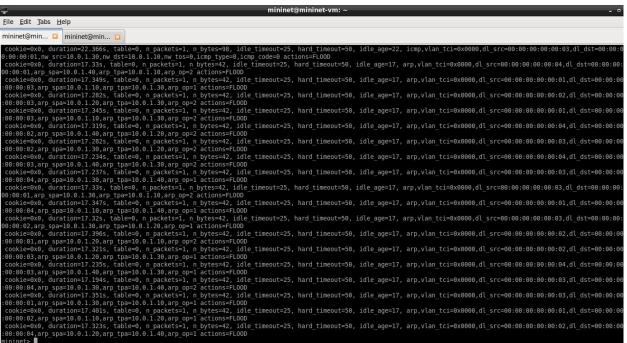
2.dpctl dump-flows


```
mininet> dpctl dump-flows
*** s1 ------------------------------------------------------------
NXST_FLOW reply (xid=0x4):
 cookie=0x0, duration=22.359s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:0
0:00:00:04,nw_src=10.0.1.10,nw_dst=10.0.1.40,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.378s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:0
0:00:00:02,nw_src=10.0.1.10,nw_dst=10.0.1.20,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.355s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:0
0:00:00:01,nw_src=10.0.1.40,nw_dst=10.0.1.10,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.296s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:0
0:00:00:03,nw_src=10.0.1.20,nw_dst=10.0.1.30,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.272s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:0
0:00:00:04,nw_src=10.0.1.30,nw_dst=10.0.1.40,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.346s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:0
0:00:00:02,nw_src=10.0.1.10,nw_dst=10.0.1.20,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.368s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:0
0:00:00:03,nw_src=10.0.1.10,nw_dst=10.0.1.30,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.247s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:0
0:00:00:02,nw_src=10.0.1.40,nw_dst=10.0.1.20,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.27s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00
:00:00:03,nw_src=10.0.1.40,nw_dst=10.0.1.30,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.336s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:0
0:00:00:03,nw_src=10.0.1.20,nw_dst=10.0.1.30,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.304s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:0
0:00:00:03,nw_src=10.0.1.10,nw_dst=10.0.1.30,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.232s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:0
0:00:00:03,nw_src=10.0.1.40,nw_dst=10.0.1.30,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.334s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:0
0:00:00:02,nw_src=10.0.1.30,nw_dst=10.0.1.20,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.329s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:0
0:00:00:04,nw_src=10.0.1.20,nw_dst=10.0.1.40,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.326s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:0
0:00:00:02,nw_src=10.0.1.40,nw_dst=10.0.1.20,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.242s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:0
0:00:00:04,nw_src=10.0.1.20,nw_dst=10.0.1.40,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.299s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:0
0:00:00:02,nw_src=10.0.1.30,nw_dst=10.0.1.20,nw_tos=0,icmp_type=8,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=22.228s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:0
```


mininet@mininet-vm: ~

File   Edit   Tabs   Help

mininet@min...   mininet@min...

```
 cookie=0x0, duration=22.366s, table=0, n_packets=1, n_bytes=98, idle_timeout=25, hard_timeout=50, idle_age=22, icmp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:0
0:00:00:01,nw_src=10.0.1.30,nw_dst=10.0.1.10,nw_tos=0,icmp_type=0,icmp_code=0 actions=FLOOD
 cookie=0x0, duration=17.33s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00:
00:00:01,arp_spa=10.0.1.40,arp_tpa=10.0.1.10,arp_op=2 actions=FLOOD
 cookie=0x0, duration=17.349s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:00
:00:00:03,arp_spa=10.0.1.10,arp_tpa=10.0.1.30,arp_op=1 actions=FLOOD
 cookie=0x0, duration=17.282s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:00
:00:00:03,arp_spa=10.0.1.20,arp_tpa=10.0.1.30,arp_op=2 actions=FLOOD
 cookie=0x0, duration=17.345s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:00
:00:00:03,arp_spa=10.0.1.10,arp_tpa=10.0.1.30,arp_op=2 actions=FLOOD
 cookie=0x0, duration=17.319s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00
:00:00:02,arp_spa=10.0.1.40,arp_tpa=10.0.1.20,arp_op=2 actions=FLOOD
 cookie=0x0, duration=17.282s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:00
:00:00:02,arp_spa=10.0.1.30,arp_tpa=10.0.1.20,arp_op=2 actions=FLOOD
 cookie=0x0, duration=17.234s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00
:00:00:03,arp_spa=10.0.1.40,arp_tpa=10.0.1.30,arp_op=2 actions=FLOOD
 cookie=0x0, duration=17.237s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:00
:00:00:04,arp_spa=10.0.1.30,arp_tpa=10.0.1.40,arp_op=2 actions=FLOOD
 cookie=0x0, duration=17.33s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:00:
00:00:01,arp_spa=10.0.1.30,arp_tpa=10.0.1.10,arp_op=2 actions=FLOOD
 cookie=0x0, duration=17.347s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:00
:00:00:04,arp_spa=10.0.1.10,arp_tpa=10.0.1.40,arp_op=1 actions=FLOOD
 cookie=0x0, duration=17.32s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:00:
00:00:02,arp_spa=10.0.1.30,arp_tpa=10.0.1.20,arp_op=1 actions=FLOOD
 cookie=0x0, duration=17.396s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:00
:00:00:01,arp_spa=10.0.1.20,arp_tpa=10.0.1.10,arp_op=2 actions=FLOOD
 cookie=0x0, duration=17.321s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:00
:00:00:03,arp_spa=10.0.1.20,arp_tpa=10.0.1.30,arp_op=1 actions=FLOOD
 cookie=0x0, duration=17.235s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:04,dl_dst=00:00:00
:00:00:03,arp_spa=10.0.1.40,arp_tpa=10.0.1.30,arp_op=1 actions=FLOOD
 cookie=0x0, duration=17.194s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:00
:00:00:04,arp_spa=10.0.1.30,arp_tpa=10.0.1.40,arp_op=2 actions=FLOOD
 cookie=0x0, duration=17.351s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:03,dl_dst=00:00:00
:00:00:01,arp_spa=10.0.1.30,arp_tpa=10.0.1.10,arp_op=1 actions=FLOOD
 cookie=0x0, duration=17.401s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:01,dl_dst=00:00:00
:00:00:02,arp_spa=10.0.1.10,arp_tpa=10.0.1.20,arp_op=1 actions=FLOOD
 cookie=0x0, duration=17.323s, table=0, n_packets=1, n_bytes=42, idle_timeout=25, hard_timeout=50, idle_age=17, arp,vlan_tci=0x0000,dl_src=00:00:00:00:00:02,dl_dst=00:00:00
:00:00:04,arp_spa=10.0.1.20,arp_tpa=10.0.1.40,arp_op=1 actions=FLOOD
mininet>
```

3.iperf

```
mininet> iperf
*** Iperf: testing TCP bandwidth between h1 and h4
```

Never succends or gives any output.