Assignment: OSPF
Computer Networking
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1. Screenshot configurations of R1, R2, R3, and R4.

```
>____
                            root@CN-R1: /home/student
 File Edit View Search Terminal Help
root@CN-R1:/home/student# cat /etc/frr/frr.conf
                                                                          I
frr version 5.0.1
frr defaults traditional
hostname CN-R1
log syslog informational
service integrated-vtysh-config
username cumulus nopassword
interface eth1
ip address 10.10.10.6/29
router ospf
network 10.20.1.0/24 area 0
network 10.10.10.0/29 area 0
line vty
root@CN-R1:/home/student#
```

Capture 1 Config File for R1

```
5_
                           root@CN-R2: /home/student
File Edit View Search Terminal Help
frr defaults traditional
hostname CN-R2
log syslog informational
service integrated-vtysh-config
username cumulus nopassword
interface eth0
ip address 10.10.10.5/29
interface eth1
ip address 10.10.11.1/30
interface eth2
ip address 10.10.11.5/30
router ospf
network 10.10.10.0/29 area 0
network 10.10.11.0/27 area 1
ip route 128.238.77.0/24 10.10.10.6
line vty
root@CN-R2:/home/student#
```

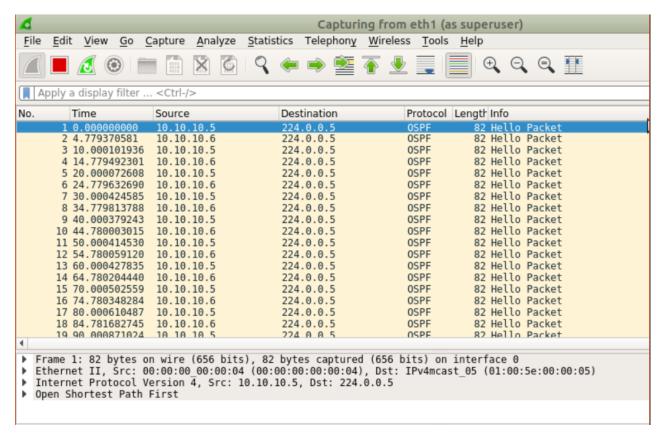
```
root@CN-R3: /home/student
File Edit View Search Terminal Help
root@CN-R3:/home/student# cat /etc/frr/frr.conf
frr version 5.0.1
frr defaults traditional
hostname CN-R3
log syslog informational
service integrated-vtysh-config
username cumulus nopassword
1
interface eth0
 ip address 10.10.11.2/30
interface eth1
 ip address 10.10.11.9/30
1
router ospf
network 10.10.11.0/28 area 1
ip route 128.238.77.0/24 10.10.11.1
line vty
root@CN-R3:/home/student#
```

Capture 3 Config File for R3

```
2
                               root@CN-R4: /etc/frr
 File Edit View Search Terminal Help
frr version 5.0.1
frr defaults traditional
hostname CN-R4
log syslog informational
service integrated-vtysh-config
username cumulus nopassword
interface eth0
 ip address 10.10.11.10/30
interface eth1
 ip address 10.10.11.6/30
interface eth2
 ip address 10.10.11.17/28
router ospf
network 10.10.11.0/27 area 1
ip route 128.238.77.0/24 10.10.11.5
line vty
root@CN-R4:/etc/frr#
```

Capture 4 Config File for R4

2. ICMP results and Wireshark screenshots on R1.



Capture 5

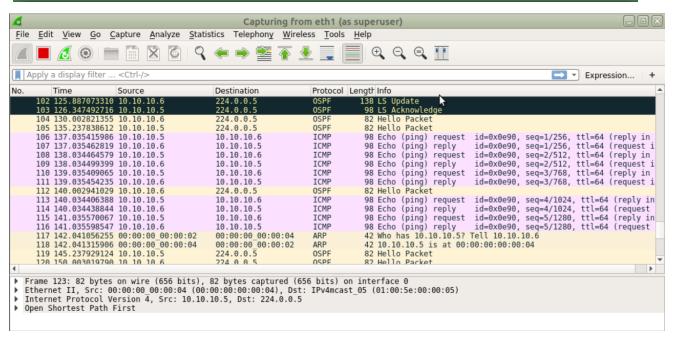
R2 to R1

```
File Edit View Search Terminal Help

root@CN-R2:/home/student# ping -c5 10.10.10.6

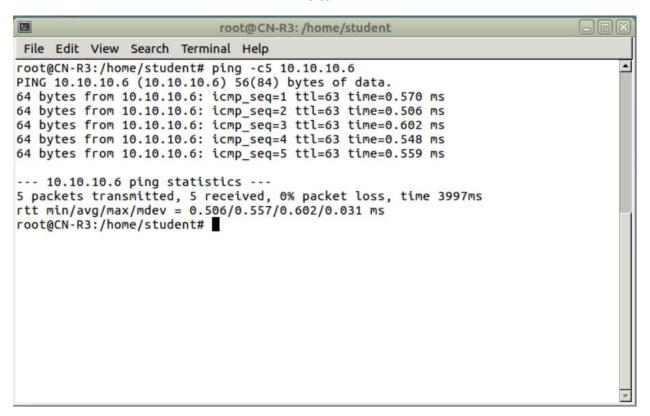
PING 10.10.10.6 (10.10.10.6) 56(84) bytes of data.
64 bytes from 10.10.10.6: icmp_seq=1 ttl=64 time=0.314 ms
64 bytes from 10.10.10.6: icmp_seq=2 ttl=64 time=0.280 ms
64 bytes from 10.10.10.6: icmp_seq=3 ttl=64 time=0.325 ms
64 bytes from 10.10.10.6: icmp_seq=4 ttl=64 time=0.307 ms
64 bytes from 10.10.10.6: icmp_seq=5 ttl=64 time=0.277 ms

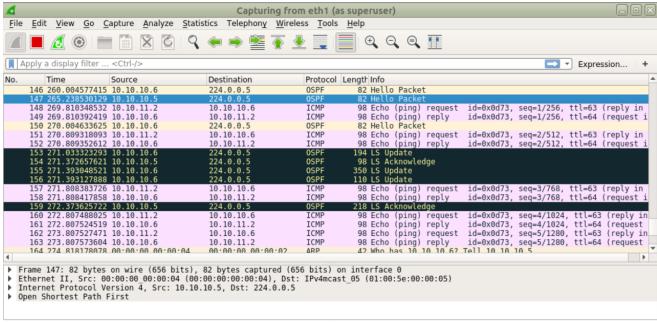
--- 10.10.10.6 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4000ms
rtt min/avg/max/mdev = 0.277/0.300/0.325/0.026 ms
root@CN-R2:/home/student#
```



Capture 6 Ping R2 to R1

R3 to R1





Capture 7 Ping R3 to R1

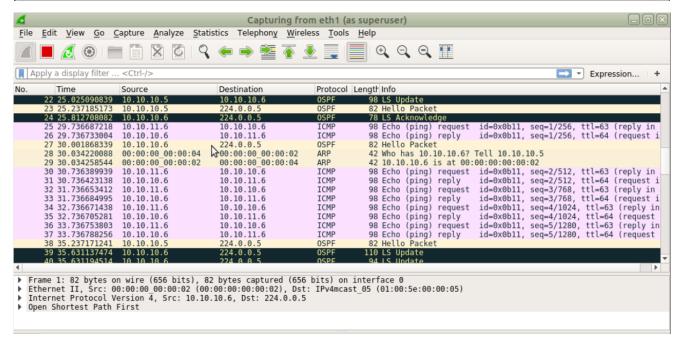
R4 to R1

```
File Edit View Search Terminal Help

root@CN-R4:/etc/frr# ping -c5 10.10.10.6

PING 10.10.6 (10.10.10.6) 56(84) bytes of data.
64 bytes from 10.10.10.6: icmp_seq=1 ttl=63 time=0.563 ms
64 bytes from 10.10.10.6: icmp_seq=2 ttl=63 time=0.495 ms
64 bytes from 10.10.10.6: icmp_seq=3 ttl=63 time=0.490 ms
64 bytes from 10.10.10.6: icmp_seq=4 ttl=63 time=0.591 ms
64 bytes from 10.10.10.6: icmp_seq=5 ttl=63 time=0.599 ms

--- 10.10.10.6 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4000ms
rtt min/avg/max/mdev = 0.490/0.529/0.599/0.050 ms
root@CN-R4:/etc/frr#
```



3. Screenshots depicting successful ping requests to 128.238.77.36 from R1, R2, R3, and R4

```
File Edit View Search Terminal Help

root@CN-R1:/home/student# ping -c5 128.238.77.36

PING 128.238.77.36 (128.238.77.36) 56(84) bytes of data.
64 bytes from 128.238.77.36: icmp_seq=1 ttl=63 time=0.616 ms
64 bytes from 128.238.77.36: icmp_seq=2 ttl=63 time=0.618 ms
64 bytes from 128.238.77.36: icmp_seq=3 ttl=63 time=0.549 ms
64 bytes from 128.238.77.36: icmp_seq=4 ttl=63 time=0.549 ms
64 bytes from 128.238.77.36: icmp_seq=5 ttl=63 time=0.568 ms

--- 128.238.77.36 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4001ms
rtt min/avg/max/mdev = 0.540/0.578/0.618/0.036 ms
root@CN-R1:/home/student#
```

Capture 9 Ping 128.238.77.36 from R1

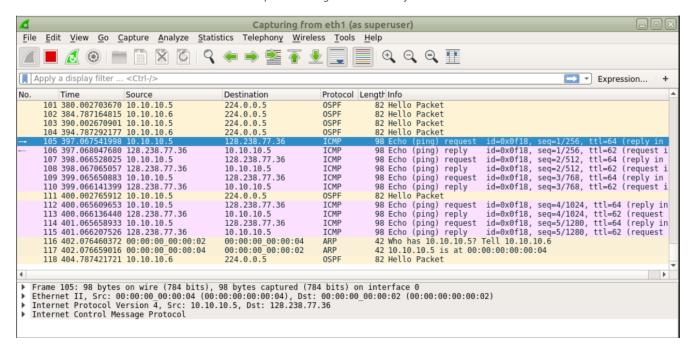
```
File Edit View Search Terminal Help

root@CN-R2:/home/student# ping -c5 128.238.77.36

PING 128.238.77.36 (128.238.77.36) 56(84) bytes of data.
64 bytes from 128.238.77.36: icmp_seq=1 ttl=62 ttme=0.963 ms
64 bytes from 128.238.77.36: icmp_seq=2 ttl=62 time=0.896 ms
64 bytes from 128.238.77.36: icmp_seq=4 ttl=62 time=0.820 ms
64 bytes from 128.238.77.36: icmp_seq=4 ttl=62 time=0.829 ms
64 bytes from 128.238.77.36: icmp_seq=5 ttl=62 time=0.829 ms

--- 128.238.77.36 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4000ms
rtt min/avg/max/mdev = 0.755/0.852/0.963/0.077 ms
root@CN-R2:/home/student#
```

Capture 10 Ping 128.238.77.36 from R2



Capture 11 Wireshark Ping 128.238.77.36 from R2

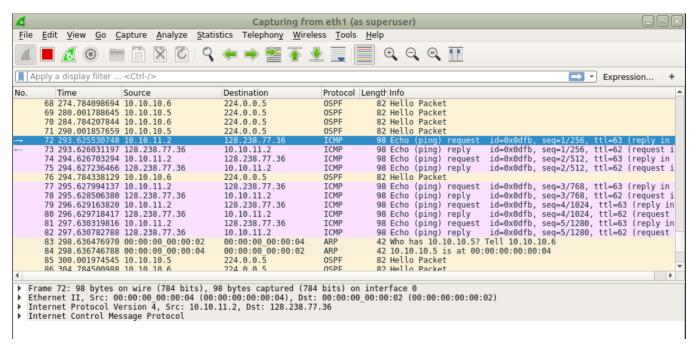
```
File Edit View Search Terminal Help

root@CN-R3:/home/student# ping -c5 128.238.77.36

PING 128.238.77.36 (128.238.77.36) 56(84) bytes of data.
64 bytes from 128.238.77.36: icmp_seq=1 ttl=61 time=1.14 ms
64 bytes from 128.238.77.36: icmp_seq=2 ttl=61 time=1.20 ms
64 bytes from 128.238.77.36: icmp_seq=3 ttl=61 time=1.02 ms
64 bytes from 128.238.77.36: icmp_seq=4 ttl=61 time=1.16 ms
64 bytes from 128.238.77.36: icmp_seq=5 ttl=61 time=1.06 ms

--- 128.238.77.36 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4004ms
rtt min/avg/max/mdev = 1.023/1.118/1.202/0.078 ms
root@CN-R3:/home/student#
```

Capture 12 Ping 128.238.77.36 from R3



Capture 13 Wireshark Ping 128.238.77.36 from R3

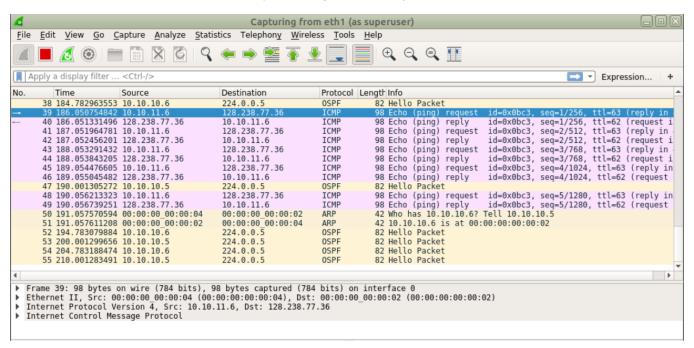
```
File Edit View Search Terminal Help

root@CN-R4:/etc/frr# ping -c5 128.238.77.36

PING 128.238.77.36 (128.238.77.36) 56(84) bytes of data.
64 bytes from 128.238.77.36: icmp_seq=1 ttl=61 time=1.22 ms
64 bytes from 128.238.77.36: icmp_seq=2 ttl=61 time=1.20 ms
64 bytes from 128.238.77.36: icmp_seq=3 ttl=61 time=1.21 ms
64 bytes from 128.238.77.36: icmp_seq=4 ttl=61 time=1.16 ms
64 bytes from 128.238.77.36: icmp_seq=5 ttl=61 time=1.02 ms

--- 128.238.77.36 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4005ms
rtt min/avg/max/mdev = 1.029/1.167/1.225/0.072 ms
root@CN-R4:/etc/frr#
```

Capture 14 Ping 128.238.77.36 from R4



Capture 15 Wireshark Ping 128.238.77.36 from R4