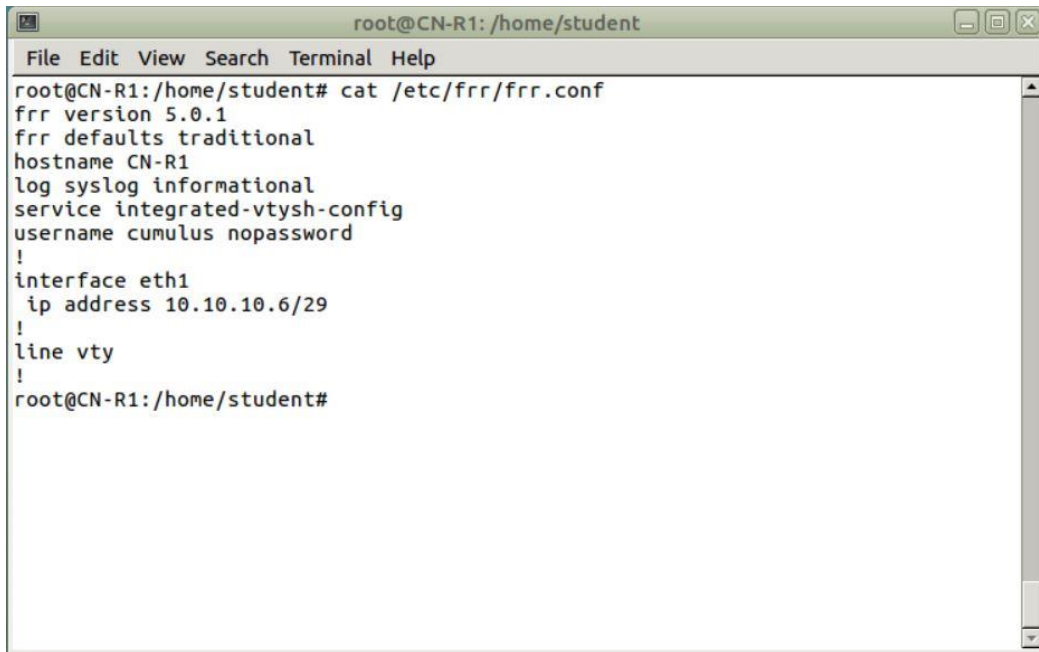


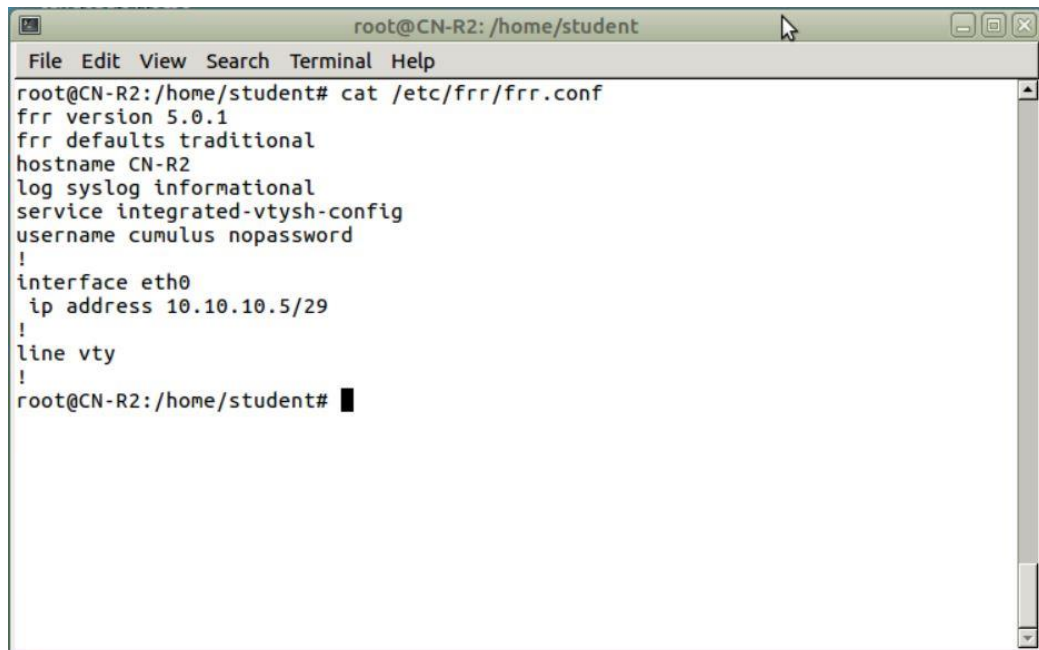
VM Subnet	IP Subnet	Network Range	Broadcast
R1(eth1), R2(eth0), Kali(eth0)	10.10.10.0/29	10.10.10.1/29 – 10.10.10.6/29	10.10.10.7/29

1. Copies of the conf files under `/etc/frr/frr.conf` for each of R1 and R2.

A terminal window titled 'root@CN-R1: /home/student' showing the contents of the file /etc/frr/frr.conf. The configuration includes frr version 5.0.1, traditional defaults, hostname CN-R1, syslog informational logging, integrated-vtysh-config service, and a username cumulus with no password. It also configures interface eth1 with IP address 10.10.10.6/29 and enables vty lines.

```
root@CN-R1: /home/student
File Edit View Search Terminal Help
root@CN-R1:/home/student# cat /etc/frr/frr.conf
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
!
line vty
!
root@CN-R1:/home/student#
```

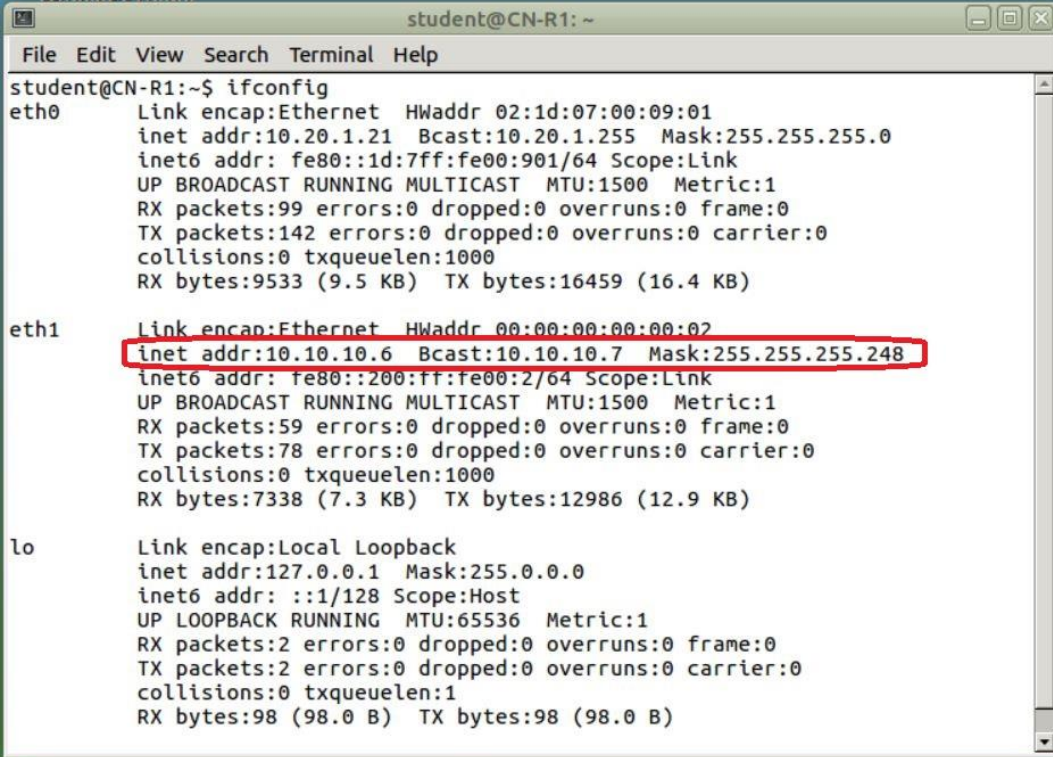
*Capture 1 Config Files for R1*

A terminal window titled 'root@CN-R2: /home/student' showing the contents of the file /etc/frr/frr.conf. The configuration is similar to R1 but uses interface eth0 with IP address 10.10.10.5/29.

```
root@CN-R2: /home/student
File Edit View Search Terminal Help
root@CN-R2:/home/student# cat /etc/frr/frr.conf
frr version 5.0.1
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
!
line vty
!
root@CN-R2:/home/student#
```

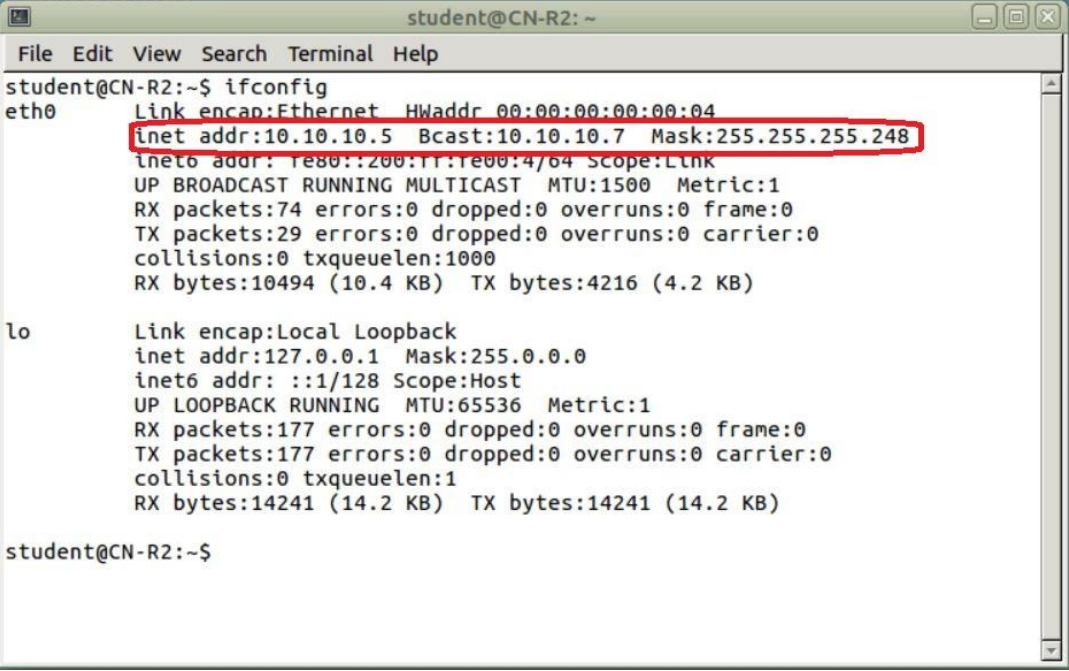
*Capture 2 Config File for R2*

## 2. The Ethernet addresses of R1, R2 and Kali



```
student@CN-R1: ~  
File Edit View Search Terminal Help  
student@CN-R1:~$ ifconfig  
eth0      Link encap:Ethernet  HWaddr 02:1d:07:00:09:01  
          inet addr:10.20.1.21 Bcast:10.20.1.255 Mask:255.255.255.0  
          inet6 addr: fe80::1d:7ff:fe00:901/64 Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:99 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:142 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:9533 (9.5 KB)  TX bytes:16459 (16.4 KB)  
  
eth1      Link encap:Ethernet  HWaddr 00:00:00:00:00:02  
          inet addr:10.10.10.6 Bcast:10.10.10.7 Mask:255.255.255.248  
          inet6 addr: fe80::200:ff:fe00:2/64 Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:59 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:78 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:7338 (7.3 KB)  TX bytes:12986 (12.9 KB)  
  
lo        Link encap:Local Loopback  
          inet addr:127.0.0.1 Mask:255.0.0.0  
          inet6 addr: ::1/128 Scope:Host  
          UP LOOPBACK RUNNING  MTU:65536  Metric:1  
          RX packets:2 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:2 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1  
          RX bytes:98 (98.0 B)  TX bytes:98 (98.0 B)
```

Capture 3 Ethernet Address R1



```
student@CN-R2: ~  
File Edit View Search Terminal Help  
student@CN-R2:~$ ifconfig  
eth0      Link encap:Ethernet  HWaddr 00:00:00:00:00:04  
          inet addr:10.10.10.5 Bcast:10.10.10.7 Mask:255.255.255.248  
          inet6 addr: fe80::200:ff:fe00:4/64 Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:74 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:29 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:10494 (10.4 KB)  TX bytes:4216 (4.2 KB)  
  
lo        Link encap:Local Loopback  
          inet addr:127.0.0.1 Mask:255.0.0.0  
          inet6 addr: ::1/128 Scope:Host  
          UP LOOPBACK RUNNING  MTU:65536  Metric:1  
          RX packets:177 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:177 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1  
          RX bytes:14241 (14.2 KB)  TX bytes:14241 (14.2 KB)  
  
student@CN-R2:~$
```

Capture 4 Ethernet Address R2

```
root@kali: /home/student
File Edit View Search Terminal Help
student@kali:~$ ifconfig
bash: ifconfig: command not found
student@kali:~$ sudo su
[sudo] password for student:
root@kali:/home/student# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.10.4 netmask 255.255.255.248 broadcast 10.10.10.7
    inet6 fe80::200:ff:fe00:3 prefixlen 64 scopeid 0x20<link>
    ether 00:00:00:00:00:03 txqueuelen 1000 (Ethernet)
    RX packets 14 bytes 920 (920.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 16 bytes 1192 (1.1 KiB)
    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 0 (Local Loopback)
    RX packets 22 bytes 1372 (1.3 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 22 bytes 1372 (1.3 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@kali:/home/student#
```

Capture 5 Ethernet Address Kali

### 3. A copy of the /etc/network/interfaces file for Kali.

```
root@kali: /home/student
File Edit View Search Terminal Help
GNU nano 2.4.3 File: /etc/network/interfaces

# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

auto eth0
iface eth0 inet static
    address 10.10.10.4
    netmask 255.255.255.248
    network 10.10.10.0
    broadcast 10.10.10.7

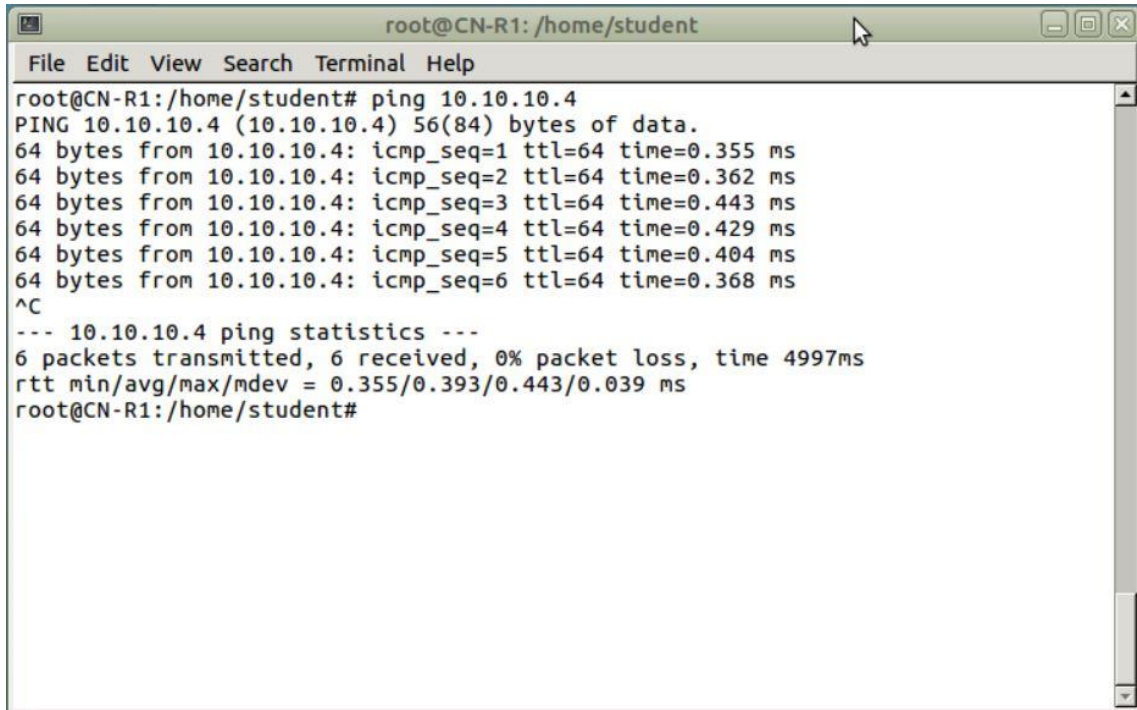
auto wlan0
iface wlan0 inet dhcp

[ Read 18 lines ]
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line
```

Capture 6 /etc/network/interfaces file

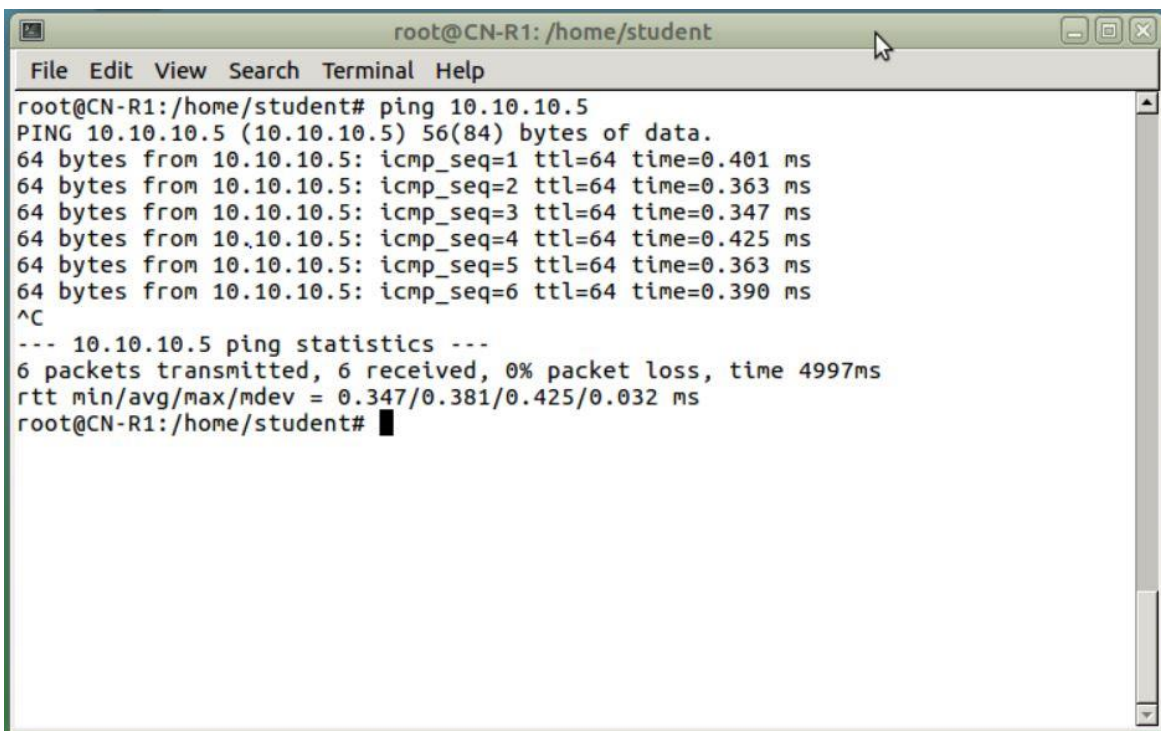


4. Pinging between R1, R2 and Kali. From Kali ping R1 and R2.



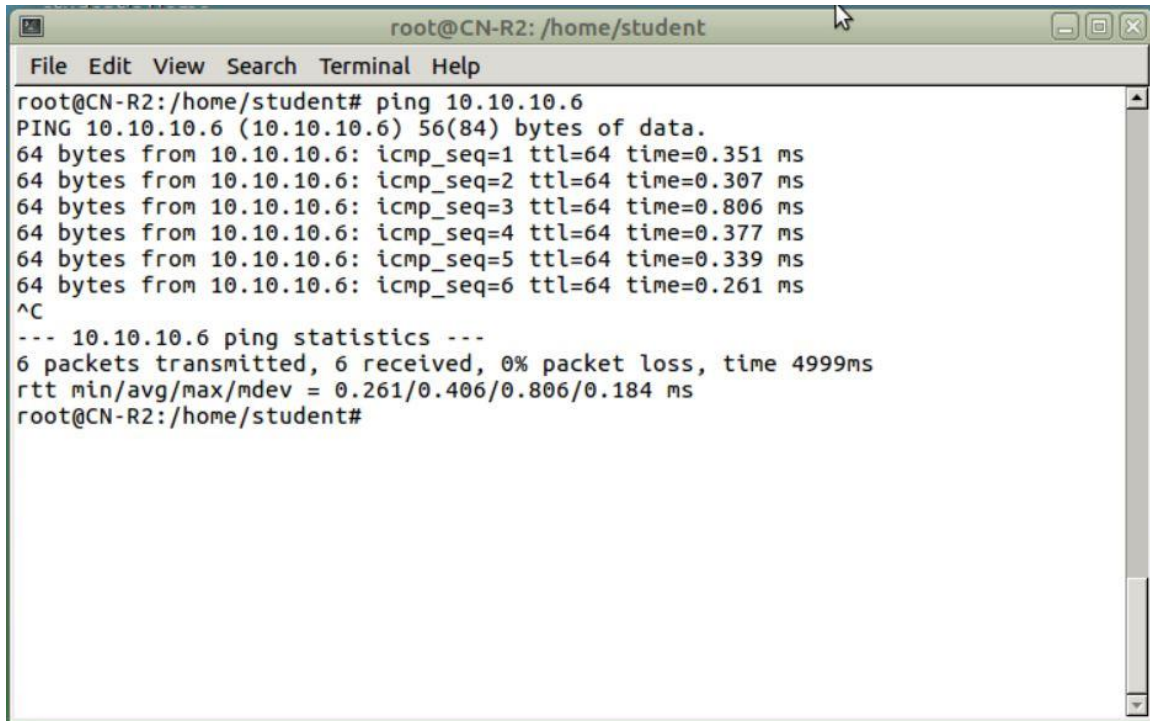
```
root@CN-R1: /home/student
File Edit View Search Terminal Help
root@CN-R1:/home/student# ping 10.10.10.4
PING 10.10.10.4 (10.10.10.4) 56(84) bytes of data.
64 bytes from 10.10.10.4: icmp_seq=1 ttl=64 time=0.355 ms
64 bytes from 10.10.10.4: icmp_seq=2 ttl=64 time=0.362 ms
64 bytes from 10.10.10.4: icmp_seq=3 ttl=64 time=0.443 ms
64 bytes from 10.10.10.4: icmp_seq=4 ttl=64 time=0.429 ms
64 bytes from 10.10.10.4: icmp_seq=5 ttl=64 time=0.404 ms
64 bytes from 10.10.10.4: icmp_seq=6 ttl=64 time=0.368 ms
^C
--- 10.10.10.4 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 4997ms
rtt min/avg/max/mdev = 0.355/0.393/0.443/0.039 ms
root@CN-R1:/home/student#
```

Capture 7 Ping R1 to Kali



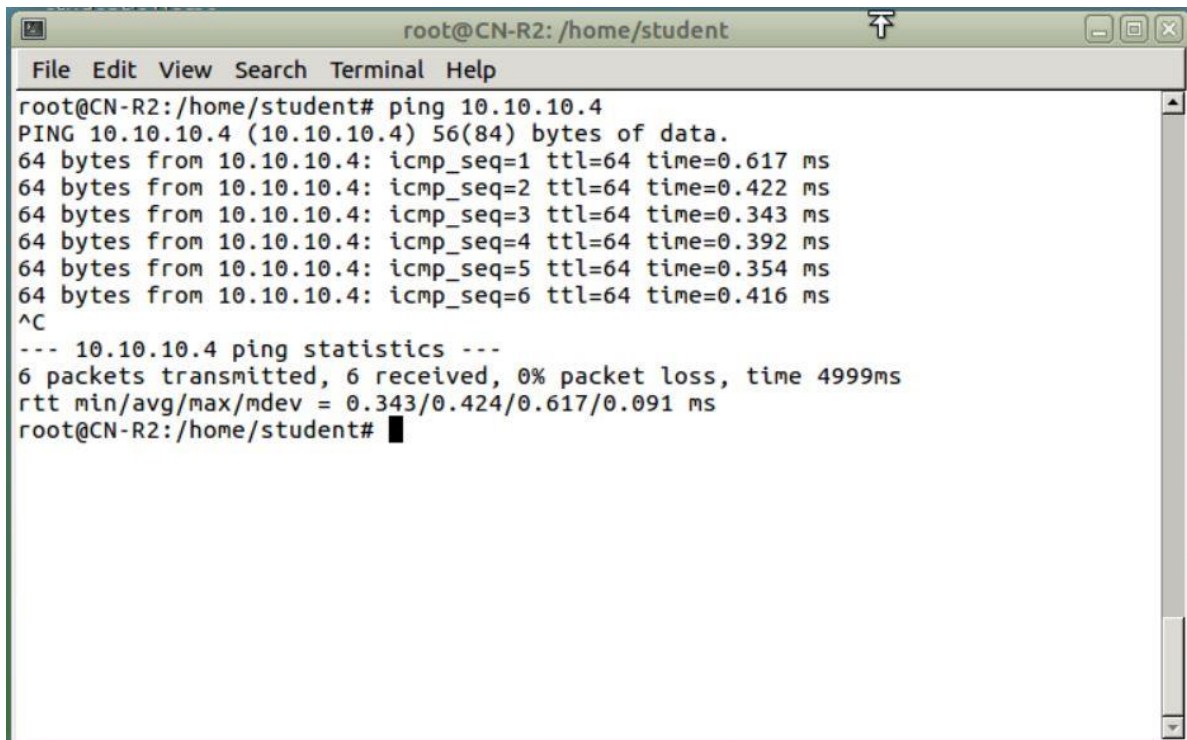
```
root@CN-R1: /home/student
File Edit View Search Terminal Help
root@CN-R1:/home/student# ping 10.10.10.5
PING 10.10.10.5 (10.10.10.5) 56(84) bytes of data.
64 bytes from 10.10.10.5: icmp_seq=1 ttl=64 time=0.401 ms
64 bytes from 10.10.10.5: icmp_seq=2 ttl=64 time=0.363 ms
64 bytes from 10.10.10.5: icmp_seq=3 ttl=64 time=0.347 ms
64 bytes from 10.10.10.5: icmp_seq=4 ttl=64 time=0.425 ms
64 bytes from 10.10.10.5: icmp_seq=5 ttl=64 time=0.363 ms
64 bytes from 10.10.10.5: icmp_seq=6 ttl=64 time=0.390 ms
^C
--- 10.10.10.5 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 4997ms
rtt min/avg/max/mdev = 0.347/0.381/0.425/0.032 ms
root@CN-R1:/home/student#
```

Capture 8 Ping R1 to R2

A terminal window titled 'root@CN-R2: /home/student' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command 'ping 10.10.10.6' and its output. The output indicates 6 successful pings to 10.10.10.6 with varying response times. A summary line shows 0% packet loss and an average response time of 0.406 ms.

```
root@CN-R2:/home/student# ping 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=0.351 ms
64 bytes from 10.10.10.6: icmp_seq=2 ttl=64 time=0.307 ms
64 bytes from 10.10.10.6: icmp_seq=3 ttl=64 time=0.806 ms
64 bytes from 10.10.10.6: icmp_seq=4 ttl=64 time=0.377 ms
64 bytes from 10.10.10.6: icmp_seq=5 ttl=64 time=0.339 ms
64 bytes from 10.10.10.6: icmp_seq=6 ttl=64 time=0.261 ms
^C
--- 10.10.10.6 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 4999ms
rtt min/avg/max/mdev = 0.261/0.406/0.806/0.184 ms
root@CN-R2:/home/student#
```

Capture 9 Ping R2 to R1

A terminal window titled 'root@CN-R2: /home/student' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command 'ping 10.10.10.4' and its output. The output indicates 6 successful pings to 10.10.10.4 with varying response times. A summary line shows 0% packet loss and an average response time of 0.424 ms.

```
root@CN-R2:/home/student# ping 10.10.10.4
PING 10.10.10.4 (10.10.10.4) 56(84) bytes of data.
64 bytes from 10.10.10.4: icmp_seq=1 ttl=64 time=0.617 ms
64 bytes from 10.10.10.4: icmp_seq=2 ttl=64 time=0.422 ms
64 bytes from 10.10.10.4: icmp_seq=3 ttl=64 time=0.343 ms
64 bytes from 10.10.10.4: icmp_seq=4 ttl=64 time=0.392 ms
64 bytes from 10.10.10.4: icmp_seq=5 ttl=64 time=0.354 ms
64 bytes from 10.10.10.4: icmp_seq=6 ttl=64 time=0.416 ms
^C
--- 10.10.10.4 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 4999ms
rtt min/avg/max/mdev = 0.343/0.424/0.617/0.091 ms
root@CN-R2:/home/student#
```

Capture 10 Ping R2 to Kali



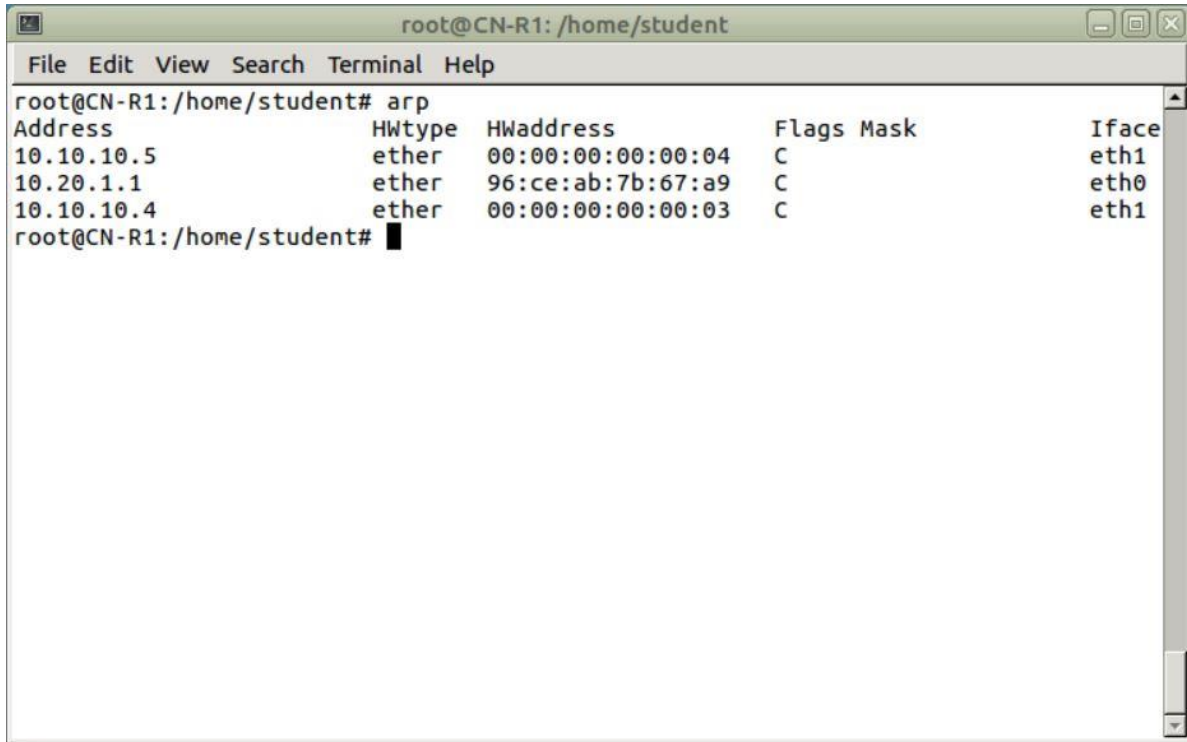
```
root@kali: /home/student
File Edit View Search Terminal Help
root@kali:/home/student# ping 10.10.10.6
PING 10.10.10.6 (10.10.10.6) 56(84) bytes of data.
64 bytes from 10.10.10.6: icmp_seq=1 ttl=64 time=0.339 ms
64 bytes from 10.10.10.6: icmp_seq=2 ttl=64 time=0.369 ms
64 bytes from 10.10.10.6: icmp_seq=3 ttl=64 time=0.378 ms
64 bytes from 10.10.10.6: icmp_seq=4 ttl=64 time=0.396 ms
64 bytes from 10.10.10.6: icmp_seq=5 ttl=64 time=0.394 ms
64 bytes from 10.10.10.6: icmp_seq=6 ttl=64 time=0.310 ms
^C
--- 10.10.10.6 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 4997ms
rtt min/avg/max/mdev = 0.310/0.364/0.396/0.034 ms
root@kali:/home/student#
```

Capture 11 Ping Kali to R1

```
root@kali: /home/student
File Edit View Search Terminal Help
root@kali:/home/student# ping 10.10.10.5
PING 10.10.10.5 (10.10.10.5) 56(84) bytes of data.
64 bytes from 10.10.10.5: icmp_seq=1 ttl=64 time=0.355 ms
64 bytes from 10.10.10.5: icmp_seq=2 ttl=64 time=0.303 ms
64 bytes from 10.10.10.5: icmp_seq=3 ttl=64 time=0.313 ms
64 bytes from 10.10.10.5: icmp_seq=4 ttl=64 time=0.284 ms
64 bytes from 10.10.10.5: icmp_seq=5 ttl=64 time=0.272 ms
64 bytes from 10.10.10.5: icmp_seq=6 ttl=64 time=0.336 ms
^C
--- 10.10.10.5 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 4998ms
rtt min/avg/max/mdev = 0.272/0.310/0.355/0.033 ms
root@kali:/home/student#
```

Capture 12 Ping Kali to R2

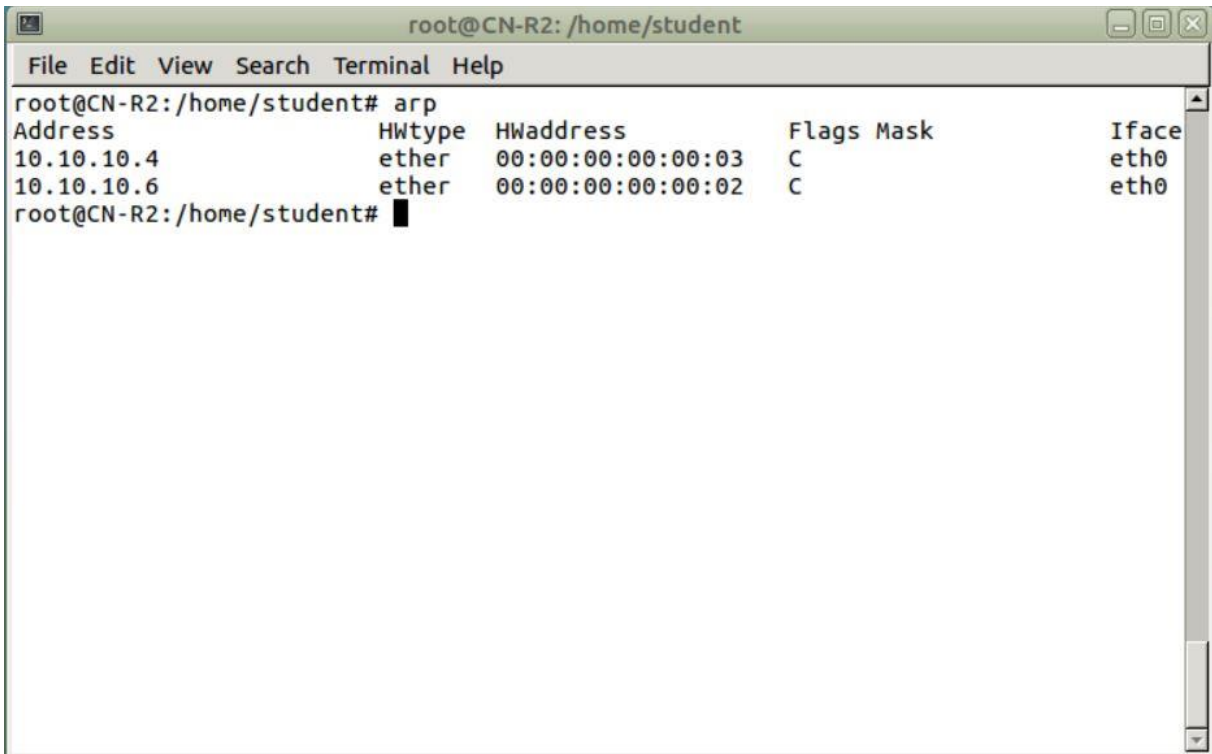
5. Copies of the ARP tables on R1, R2 and Kali.



A terminal window titled 'root@CN-R1: /home/student' showing the output of the 'arp' command. The output is a table with columns: Address, HWtype, HWaddress, Flags, Mask, and Iface. The data rows are:

Address	HWtype	HWaddress	Flags	Mask	Iface
10.10.10.5	ether	00:00:00:00:00:04	C		eth1
10.20.1.1	ether	96:ce:ab:7b:67:a9	C		eth0
10.10.10.4	ether	00:00:00:00:00:03	C		eth1

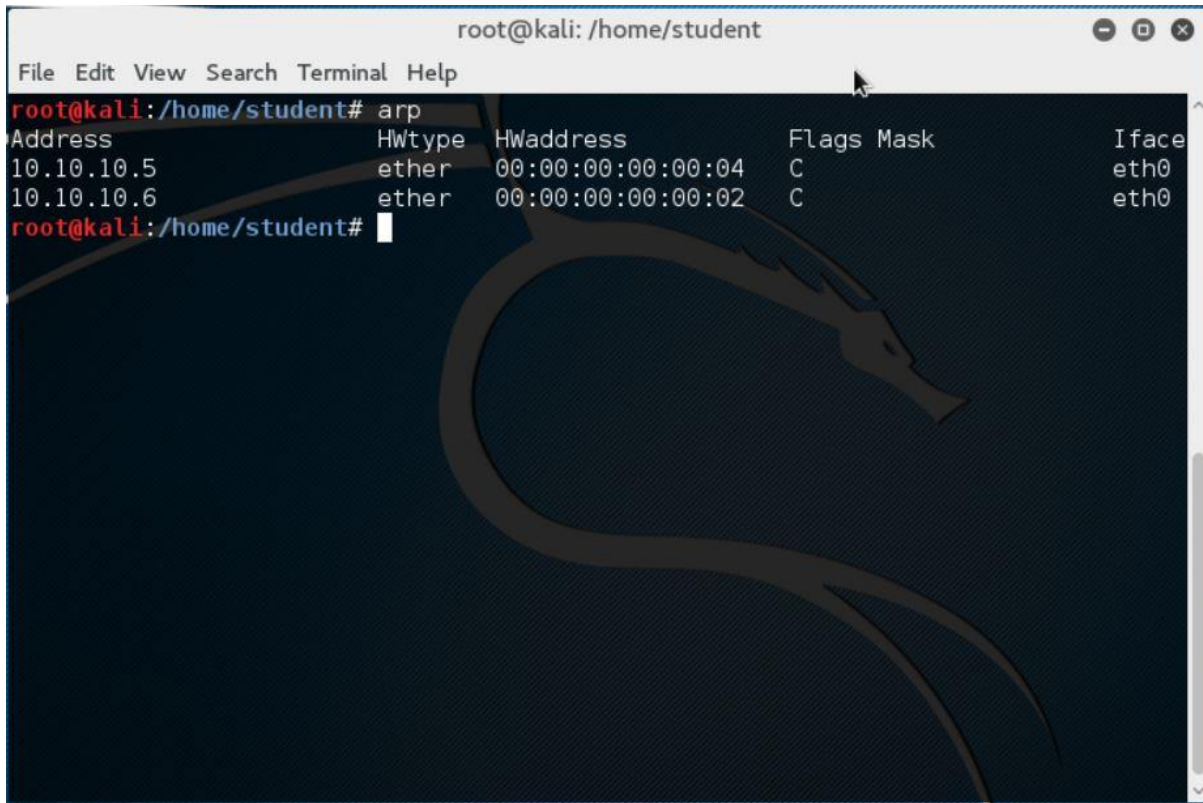
Capture 13 ARP Tables R1



A terminal window titled 'root@CN-R2: /home/student' showing the output of the 'arp' command. The output is a table with columns: Address, HWtype, HWaddress, Flags, Mask, and Iface. The data rows are:

Address	HWtype	HWaddress	Flags	Mask	Iface
10.10.10.4	ether	00:00:00:00:00:03	C		eth0
10.10.10.6	ether	00:00:00:00:00:02	C		eth0

Capture 14 ARP for R2



A terminal window titled 'root@kali: /home/student' with a menu bar (File, Edit, View, Search, Terminal, Help) and standard window controls. The terminal shows the output of the 'arp' command. The output is a table with columns: Address, HWtype, HWaddress, Flags, Mask, and Iface. The data shows two entries for the 'eth0' interface. A large, faint Kali Linux dragon logo is visible in the background of the terminal.

```
root@kali:/home/student# arp
Address      HWtype  HWaddress    Flags Mask    Iface
10.10.10.5   ether   00:00:00:00:00:04  C         eth0
10.10.10.6   ether   00:00:00:00:00:02  C         eth0
root@kali:/home/student#
```

*Capture 15 ARP for Kali*