

IP Interfaces Part 1

For this assignment, IP addresses assigned to R1, R2 and Kali are:

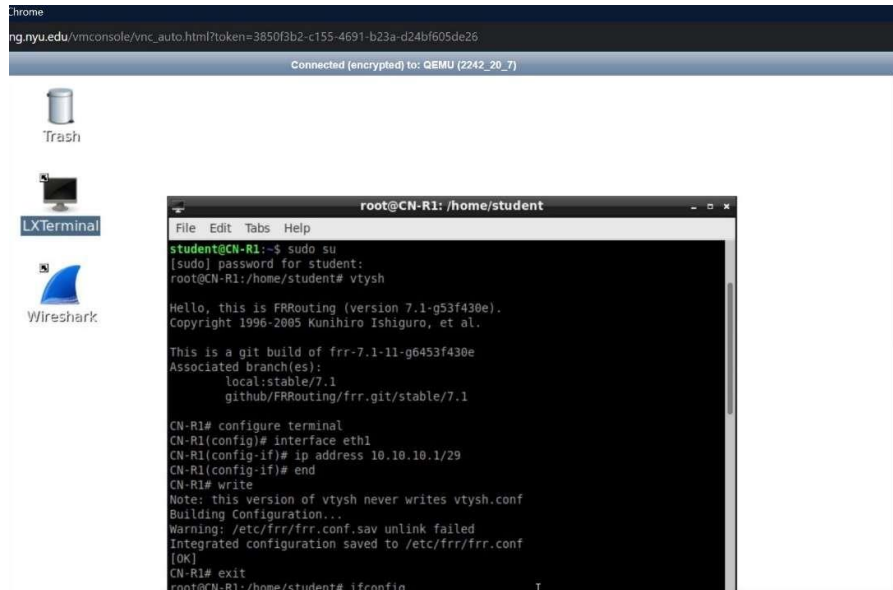
R1 - 10.10.10.1

R2 - 10.10.10.2

Kali - 10.10.10.3

Part 1: Configuring Network Interfaces

Screenshots showing the configuration steps done for R1-



The screenshot shows a terminal window titled 'root@CN-R1: /home/student'. The user has entered 'sudo su' and then 'vtysh'. The terminal displays the FRRouting version (7.1-g53f430e) and the git build information. The user then enters 'configure terminal', 'interface eth1', 'ip address 10.10.10.1/29', and 'end'. The terminal shows the configuration being saved to /etc/frr/frr.conf.

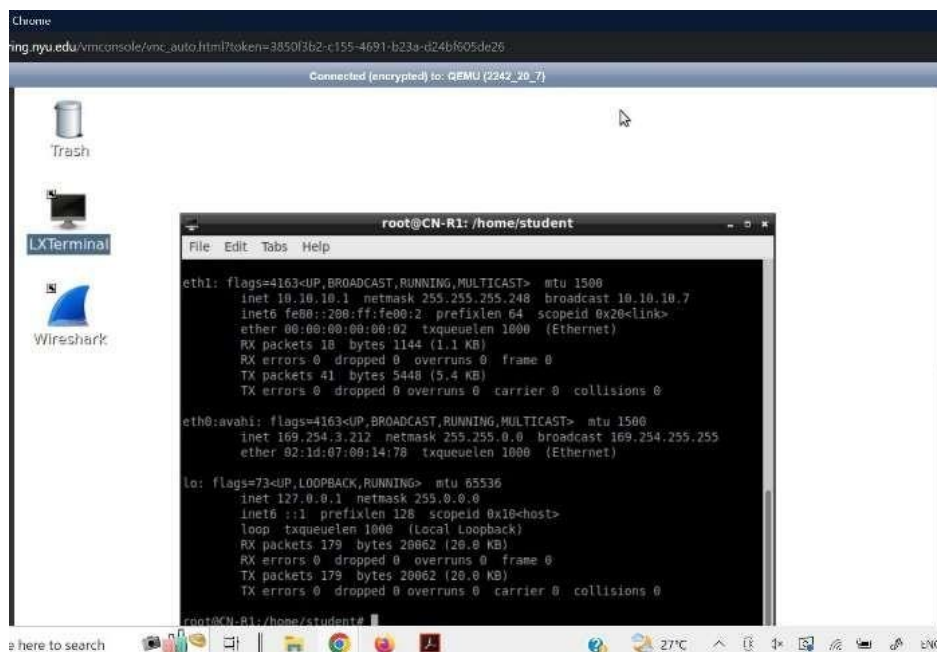
```
root@CN-R1: /home/student
student@CN-R1:~$ sudo su
[sudo] password for student:
root@CN-R1: /home/student# vtysh

Hello, this is FRRouting (version 7.1-g53f430e).
Copyright 1996-2005 Kunihiro Ishiguro, et al.

This is a git build of frr-7.1-11-g6453f430e
Associated branch(es):
  local:stable/7.1
  github:FRRouting/frr.git/stable/7.1

CN-R1# configure terminal
CN-R1(config)# interface eth1
CN-R1(config-if)# ip address 10.10.10.1/29
CN-R1(config-if)# end
CN-R1# write
Note: this version of vtysh never writes vtysh.conf
Building Configuration...
Warning: /etc/frr/frr.conf.sav unlink failed
Integrated configuration saved to /etc/frr/frr.conf
[OK]
CN-R1# exit
root@CN-R1: /home/student# ifconfig
```

R1 config commands



The screenshot shows the output of the 'ifconfig' command in the terminal window. It displays the configuration for three interfaces: eth1, eth0:avahi, and lo. The output includes flags, IP address, netmask, broadcast address, and various statistics for each interface.

```
root@CN-R1: /home/student# ifconfig

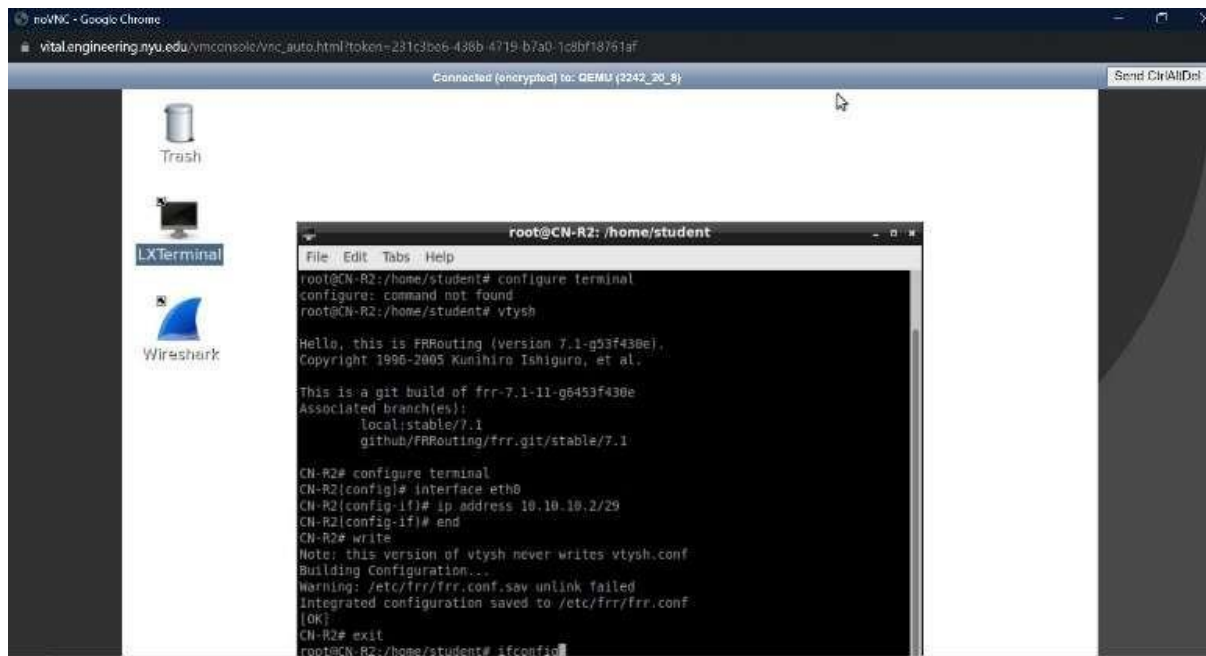
eth1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.10.1 netmask 255.255.255.248 broadcast 10.10.10.7
    inet6 fe80::200:ff:fe00:2 prefixlen 64 scopeid 0x20<link>
    ether 00:00:00:00:00:02 txqueuelen 1000 (Ethernet)
    RX packets 18 bytes 1144 (1.1 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 41 bytes 5448 (5.4 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth0:avahi: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 169.254.3.212 netmask 255.255.0.0 broadcast 169.254.255.255
    ether 02:1d:07:00:14:78 txqueuelen 1000 (Ethernet)

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 179 bytes 28862 (28.0 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 179 bytes 28862 (28.0 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ifconfig for R1

Screenshots showing the commands given for R2 configuration –



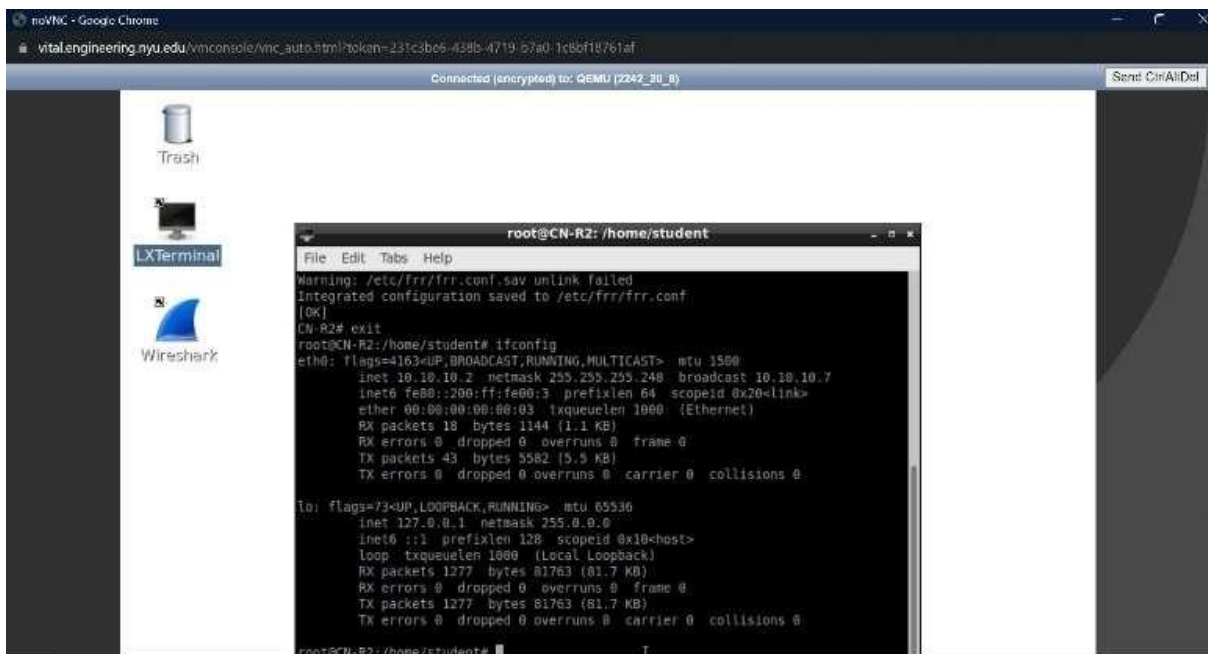
```
root@CN-R2: /home/student
File Edit Tabs Help
root@CN-R2:/home/student# configure terminal
configure: command not found
root@CN-R2:/home/student# vtysh

Hello, this is FRRouting (version 7.1-g53f430e).
Copyright 1996-2005 Kunihiro Ishiguro, et al.

This is a git build of frr-7.1-11-g6453f430e
Associated branch(es):
  local:stable/7.1
  github:FRRouting/frr.git/stable/7.1

CN-R2# configure terminal
CN-R2(config)# interface eth0
CN-R2(config-if)# ip address 10.10.10.2/29
CN-R2(config-if)# end
CN-R2# write
Note: this version of vtysh never writes vtysh.conf
Building Configuration...
Warning: /etc/frr/frr.conf.sav unlink failed
Integrated configuration saved to /etc/frr/frr.conf
[OK]
CN-R2# exit
root@CN-R2:/home/student# ifconfig
```

R2 configuration commands



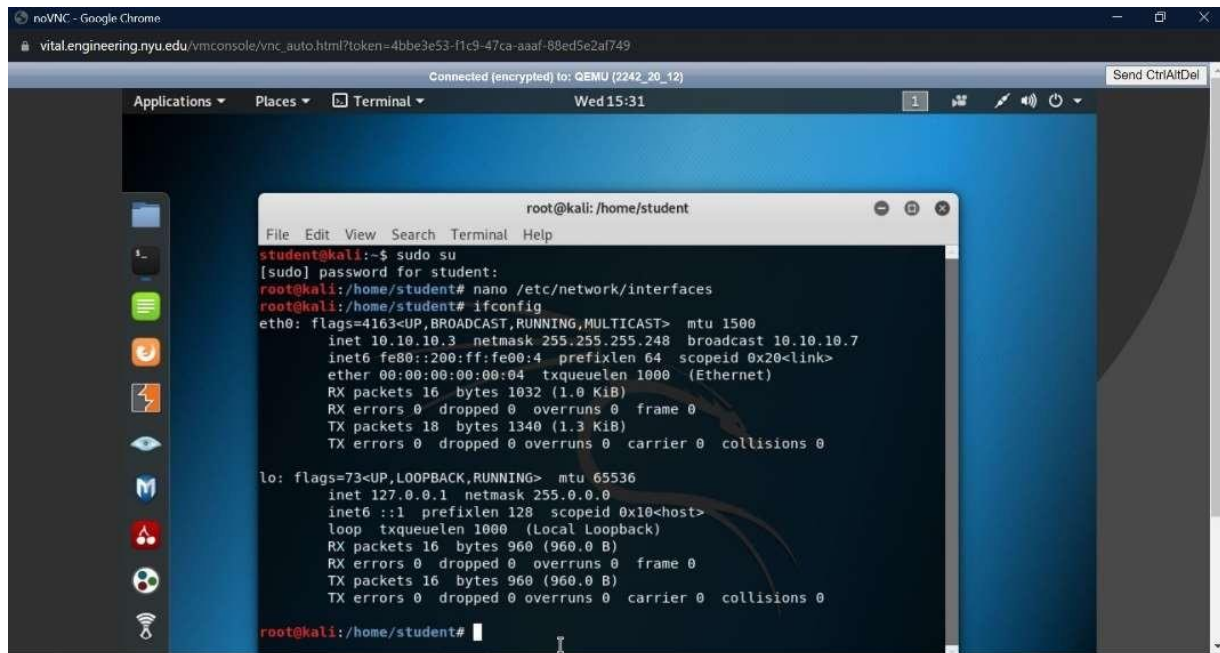
```
root@CN-R2: /home/student
File Edit Tabs Help
Warning: /etc/frr/frr.conf.sav unlink failed
Integrated configuration saved to /etc/frr/frr.conf
[OK]
CN-R2# exit
root@CN-R2:/home/student# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.10.2 netmask 255.255.255.240 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 18 bytes 1144 (1.1 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 43 bytes 5582 (5.5 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 1277 bytes 81763 (81.7 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1277 bytes 81763 (81.7 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@CN-R2:/home/student#
```

ifconfig for R2

Part 2: Configuring Kali



The screenshot shows a noVNC window titled "noVNC - Google Chrome" with a URL from vital.engineering.nyu.edu. The connection is to a QEMU instance (2242_20_12). The terminal window displays the following commands and output:

```
root@kali: /home/student
File Edit View Search Terminal Help
student@kali:~$ sudo su
[sudo] password for student:
root@kali:/home/student# nano /etc/network/interfaces
root@kali:/home/student# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.10.3 netmask 255.255.255.248 broadcast 10.10.10.7
    inet6 fe80::200:ff:fe00:4 prefixlen 64 scopeid 0x20<link>
    ether 00:00:00:00:00:04 txqueuelen 1000 (Ethernet)
    RX packets 16 bytes 1032 (1.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 18 bytes 1340 (1.3 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 1000 (Local Loopback)
    RX packets 16 bytes 960 (960.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 16 bytes 960 (960.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

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

ifconfig for Kali after reboot

Part 3: Questions

a) Why did we choose the /29 subnet mask for Area 0? (10 points)

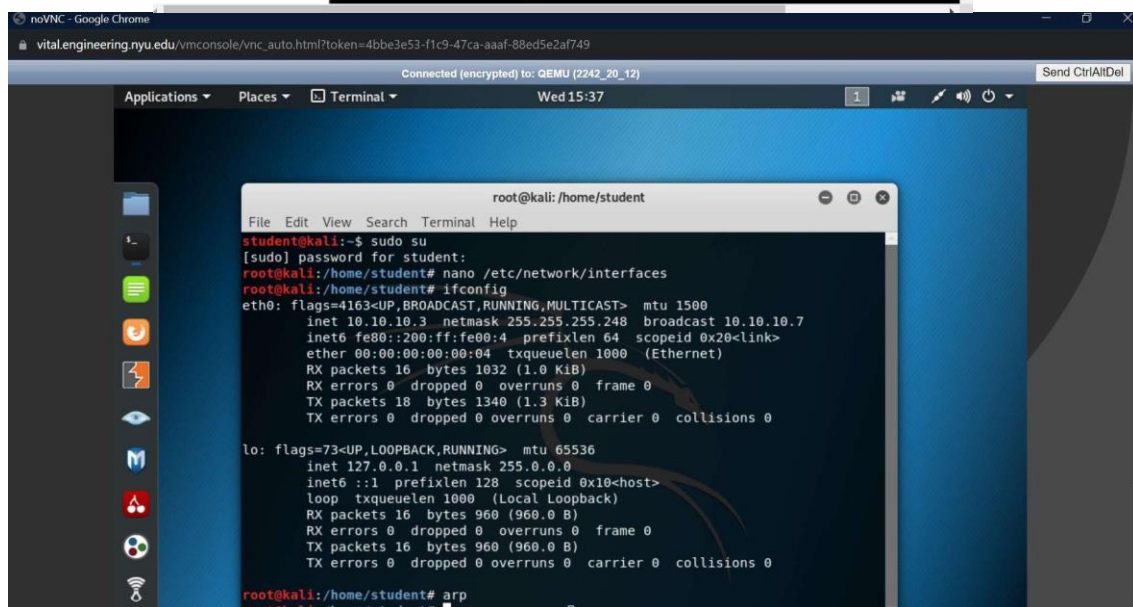
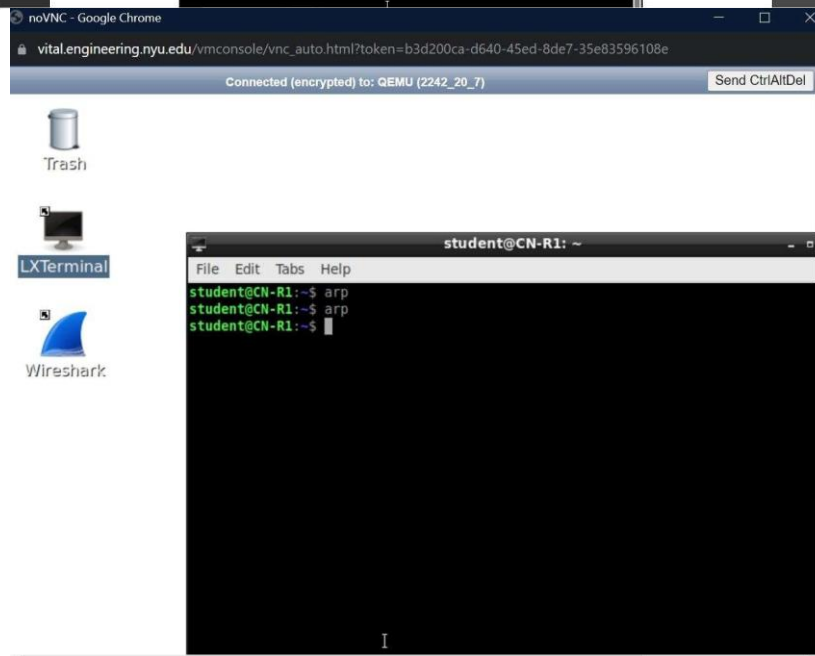
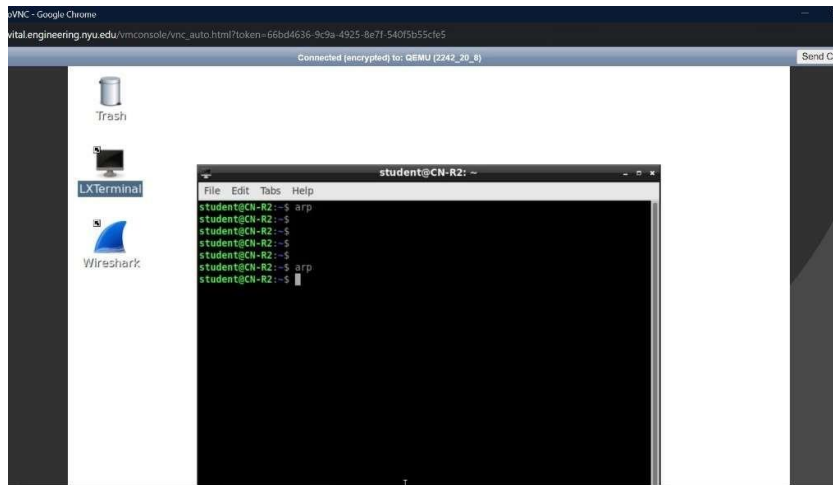
The /29 subnet mask provides 6 usable addresses. 29 bits are for network address and the 3 bits available for the host addresses allow for 8 (2^3) possible combinations. However, two of these are reserved: one for the network address (all host bits set to 0) and one for the broadcast address (all host bits set to 1).

In this case, the requirement is of 3 IP addresses for R1, R2 and Kali, which the /29 subnet mask can accommodate. Here, I assigned R1 - 10.10.10.1 , R2 – 10.10.10.2 , Kali – 10.10.10.3

If /30 or /27 subnet is chosen, the IP addresses won't be sufficient(/30 – 2 usable addresses) and would be in excess and unused(/27 scenario – 30 usable addresses). Hence, choosing the /29 subnet mask is ideal for this scenario.

b) The Linux arp (see man arp) command will print the current entries in the machine's address resolution protocol table. Now that you have configured Area 0, what entries are currently in R1, R2, and Kali? (10 points)

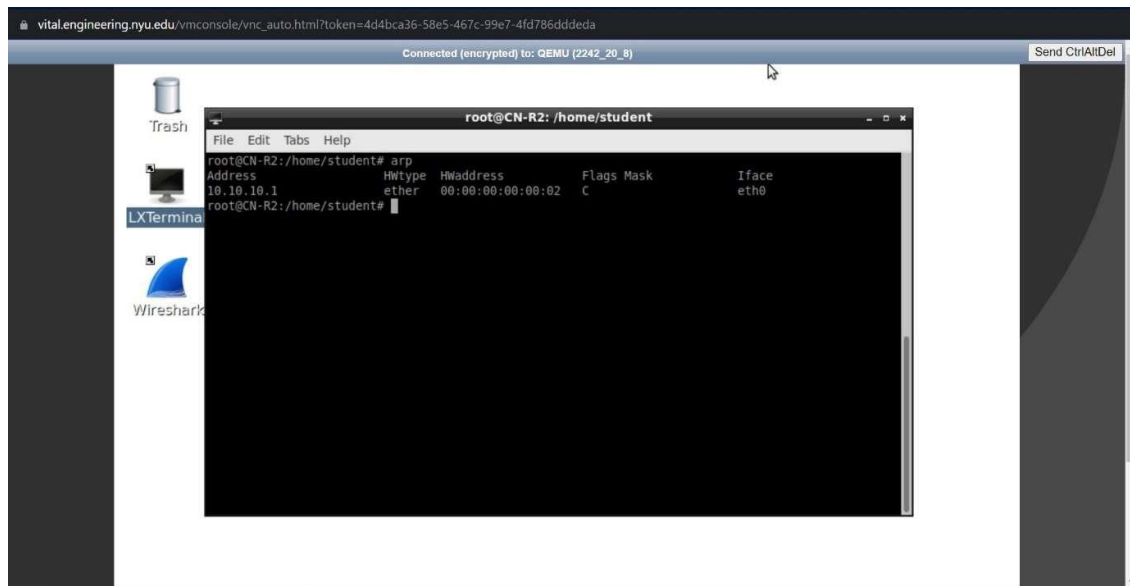
Initially, the arp table for R1, R2 and Kali was empty(as seen below). After the ping, R1 to R2 and Kali there were multiple entries, arp table of R2 consisted of pings to R1 and Kali. Similarly, arp table of Kali had entries for R1 and R2 after the ping. This can be seen in the below images of arp tables for each machine(Under the Submission images heading).



c) Now ping both R2 and Kali from R1. Note the changes on each machine's ARP tables. At this point, R2 should be aware of R1, but why doesn't R2 have a table entry for Kali? (10 points)

After pinging R2 and Kali from R1, the changes were as follows:

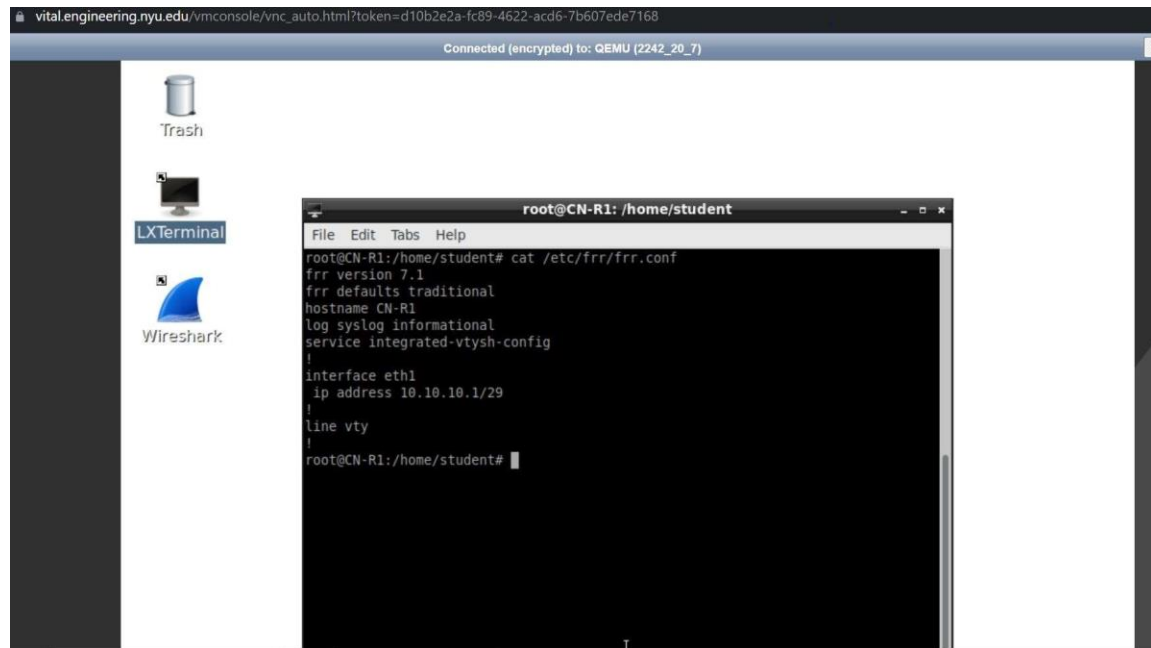
In R1's arp table, there were entries for both machines R2 and Kali. Simultaneously, the receivers, R2 and Kali, recorded data about R1. However, there was no contact made between R2 and Kali at this stage. R2 has not received any packets from Kali so has no record for the Kali machine in R2.



arp table of R2 showing only R1 and not Kali

SUBMISSION IMAGES

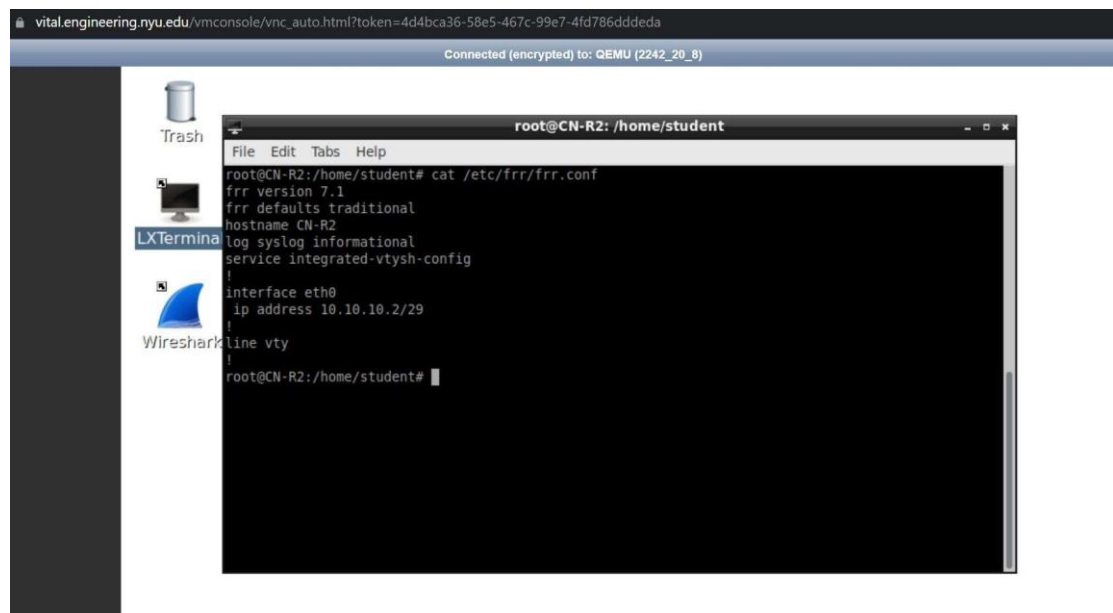
Screenshot of the .conf file under /etc/frr/frr.conf from R1



The screenshot shows a virtual machine desktop environment. On the left sidebar, there are icons for 'Trash', 'LXTerminal', and 'Wireshark'. The main window is a terminal titled 'root@CN-R1: /home/student'. The terminal output shows the command 'cat /etc/frr/frr.conf' and its contents:

```
root@CN-R1:/home/student# cat /etc/frr/frr.conf
frr version 7.1
frr defaults traditional
hostname CN-R1
log syslog informational
service integrated-vtysh-config
!
interface eth1
ip address 10.10.1/29
!
line vty
!
```

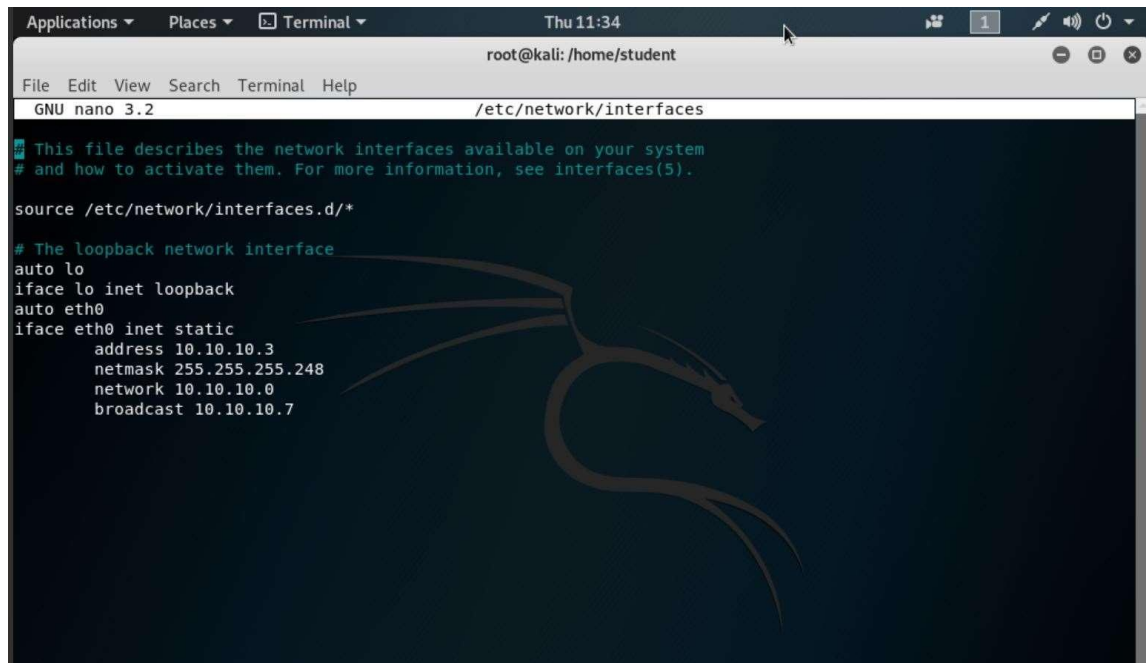
Screenshot of the .conf file under /etc/frr/frr.conf from R2



The screenshot shows a virtual machine desktop environment. On the left sidebar, there are icons for 'Trash', 'LXTerminal', and 'Wireshark'. The main window is a terminal titled 'root@CN-R2: /home/student'. The terminal output shows the command 'cat /etc/frr/frr.conf' and its contents:

```
root@CN-R2:/home/student# cat /etc/frr/frr.conf
frr version 7.1
frr defaults traditional
hostname CN-R2
log syslog informational
service integrated-vtysh-config
!
interface eth0
ip address 10.10.2/29
!
line vty
!
```


Screenshot of the /etc/network/interfaces file in Kali



The screenshot shows a terminal window with the nano 3.2 editor open to the file /etc/network/interfaces. The file content is as follows:

```
root@kali: /home/student
GNU nano 3.2 /etc/network/interfaces

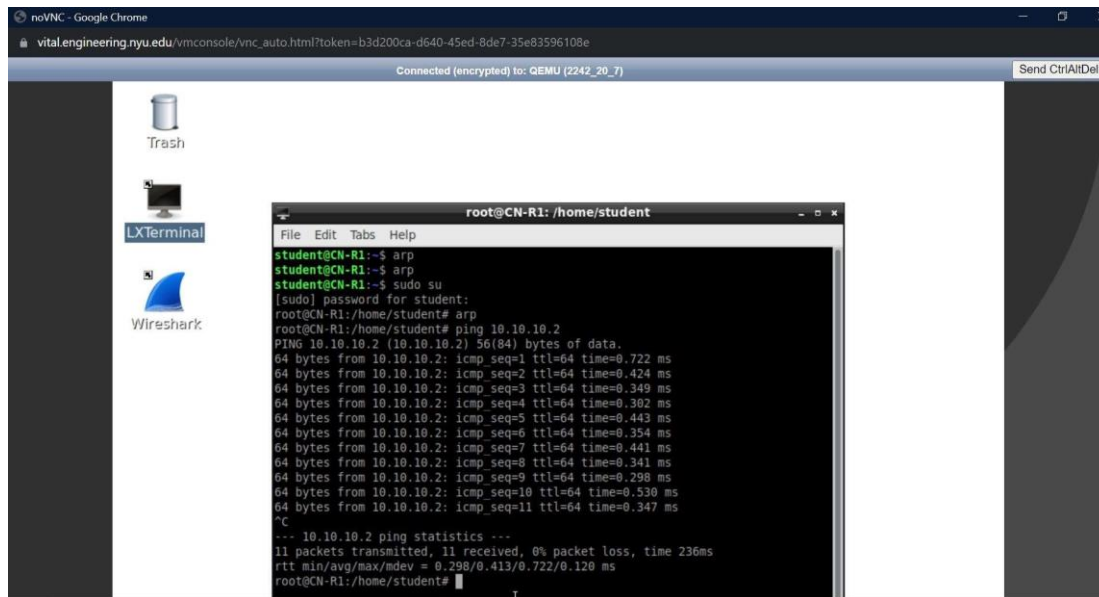
This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback
auto eth0
iface eth0 inet static
    address 10.10.10.3
    netmask 255.255.255.248
    network 10.10.10.0
    broadcast 10.10.10.7
```

Screenshot showing that pinging works between R1, R2, and Kali

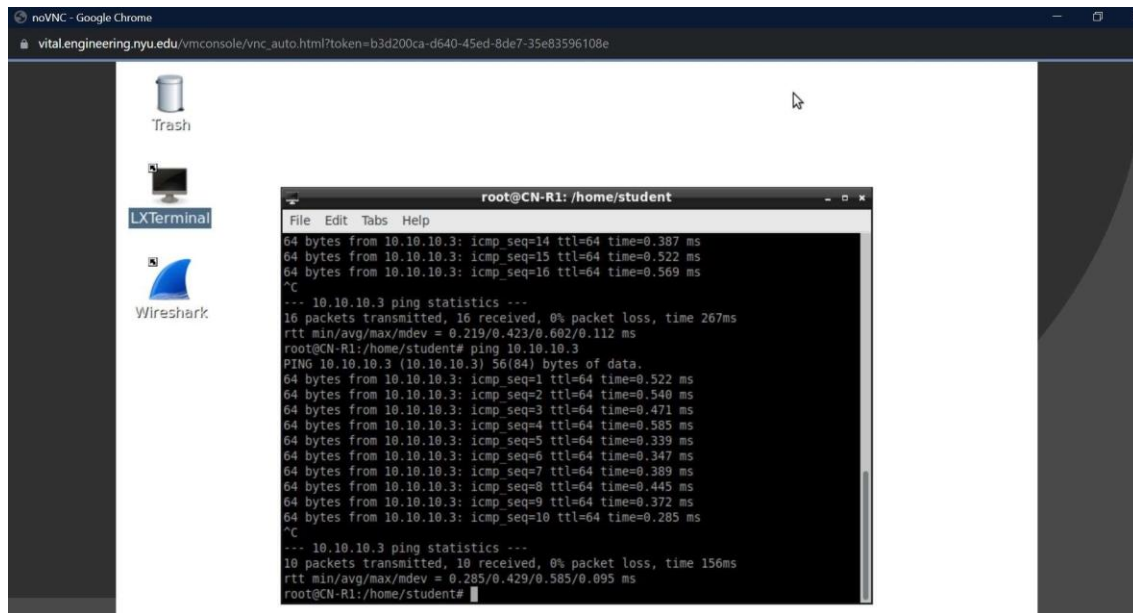
Ping from R1 to R2(10.10.10.2)



The screenshot shows a virtual machine console window titled "noVNC - Google Chrome". The console displays the output of a ping command executed from R1 to R2 (10.10.10.2). The output shows 11 successful pings with 0% packet loss and a total time of 236ms.

```
root@CN-R1: /home/student
student@CN-R1:~$ arp
student@CN-R1:~$ arp
student@CN-R1:~$ sudo su
[sudo] password for student:
root@CN-R1: /home/student# arp
root@CN-R1: /home/student# ping 10.10.10.2
PING 10.10.10.2 (10.10.10.2) 56(84) bytes of data.
64 bytes from 10.10.10.2: icmp_seq=1 ttl=64 time=0.722 ms
64 bytes from 10.10.10.2: icmp_seq=2 ttl=64 time=0.424 ms
64 bytes from 10.10.10.2: icmp_seq=3 ttl=64 time=0.349 ms
64 bytes from 10.10.10.2: icmp_seq=4 ttl=64 time=0.302 ms
64 bytes from 10.10.10.2: icmp_seq=5 ttl=64 time=0.443 ms
64 bytes from 10.10.10.2: icmp_seq=6 ttl=64 time=0.354 ms
64 bytes from 10.10.10.2: icmp_seq=7 ttl=64 time=0.441 ms
64 bytes from 10.10.10.2: icmp_seq=8 ttl=64 time=0.341 ms
64 bytes from 10.10.10.2: icmp_seq=9 ttl=64 time=0.290 ms
64 bytes from 10.10.10.2: icmp_seq=10 ttl=64 time=0.530 ms
64 bytes from 10.10.10.2: icmp_seq=11 ttl=64 time=0.347 ms
^C
--- 10.10.10.2 ping statistics ---
11 packets transmitted, 11 received, 0% packet loss, time 236ms
rtt min/avg/max/mdev = 0.290/0.413/0.722/0.120 ms
root@CN-R1: /home/student#
```

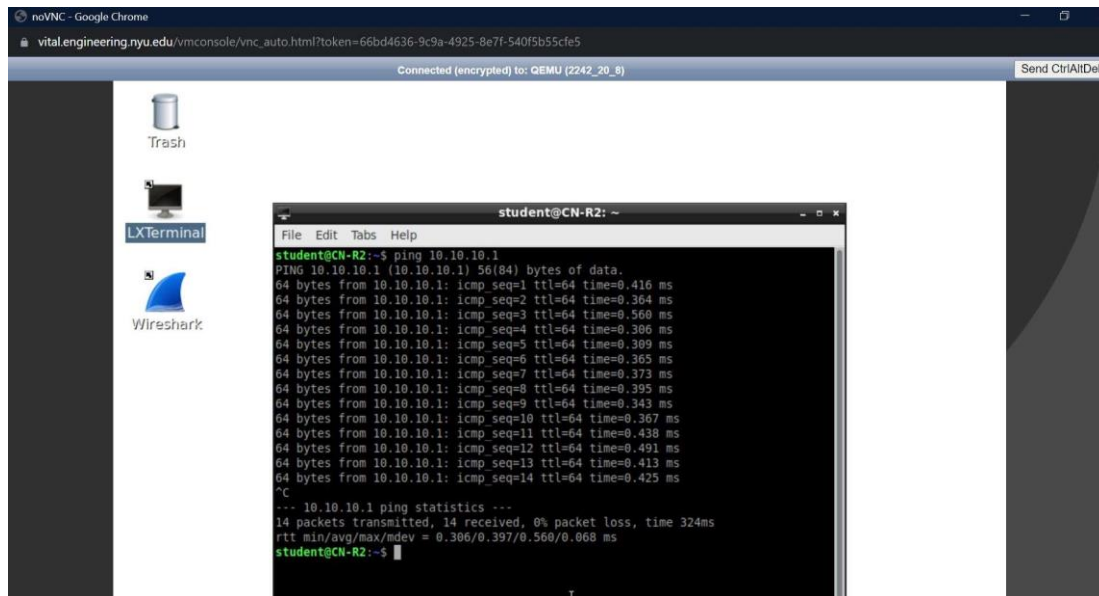
Ping from R1 to Kali(10.10.10.3)



```
noVNC - Google Chrome
vital.engineering.nyu.edu/vmconsole/vnc_auto.html?token=b3d200ca-d640-45ed-8de7-35e83596108e

root@CN-R1: /home/student
File Edit Tabs Help
64 bytes from 10.10.10.3: icmp_seq=14 ttl=64 time=0.387 ms
64 bytes from 10.10.10.3: icmp_seq=15 ttl=64 time=0.522 ms
64 bytes from 10.10.10.3: icmp_seq=16 ttl=64 time=0.569 ms
^C
--- 10.10.10.3 ping statistics ---
16 packets transmitted, 16 received, 0% packet loss, time 267ms
rtt min/avg/max/mdev = 0.219/0.423/0.602/0.112 ms
root@CN-R1:/home/student# ping 10.10.10.3
PING 10.10.10.3 (10.10.10.3) 56(84) bytes of data:
64 bytes from 10.10.10.3: icmp_seq=1 ttl=64 time=0.522 ms
64 bytes from 10.10.10.3: icmp_seq=2 ttl=64 time=0.540 ms
64 bytes from 10.10.10.3: icmp_seq=3 ttl=64 time=0.471 ms
64 bytes from 10.10.10.3: icmp_seq=4 ttl=64 time=0.585 ms
64 bytes from 10.10.10.3: icmp_seq=5 ttl=64 time=0.339 ms
64 bytes from 10.10.10.3: icmp_seq=6 ttl=64 time=0.347 ms
64 bytes from 10.10.10.3: icmp_seq=7 ttl=64 time=0.389 ms
64 bytes from 10.10.10.3: icmp_seq=8 ttl=64 time=0.445 ms
64 bytes from 10.10.10.3: icmp_seq=9 ttl=64 time=0.372 ms
64 bytes from 10.10.10.3: icmp_seq=10 ttl=64 time=0.285 ms
^C
--- 10.10.10.3 ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 156ms
rtt min/avg/max/mdev = 0.285/0.429/0.585/0.095 ms
root@CN-R1:/home/student#
```

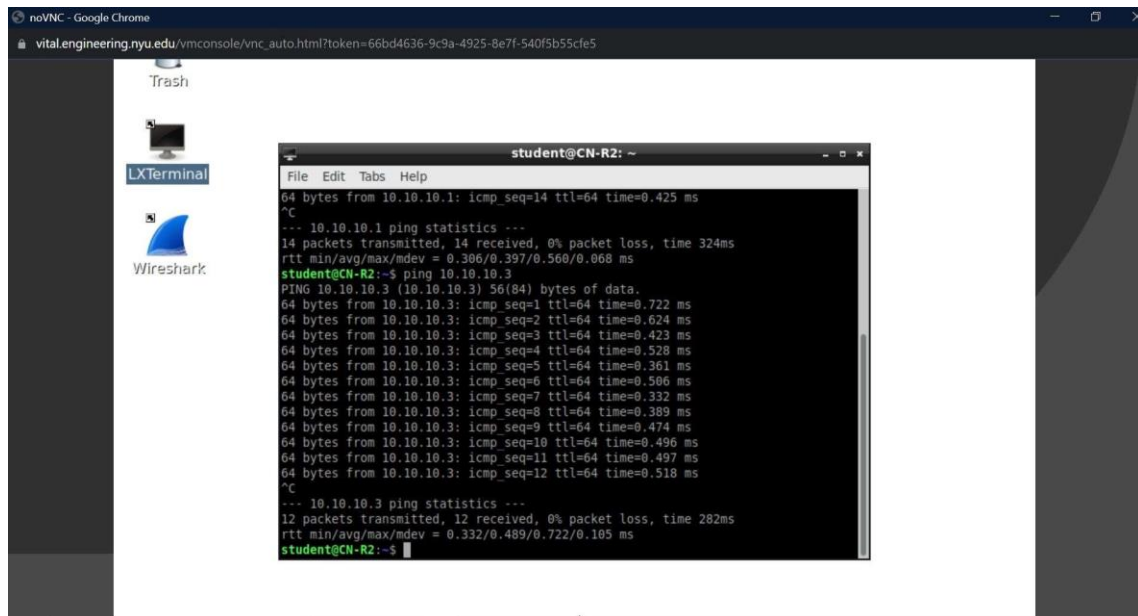
Ping from R2 to R1



```
noVNC - Google Chrome
vital.engineering.nyu.edu/vmconsole/vnc_auto.html?token=66bd4636-9c9a-4925-8e7f-540f5b55cf5e
Connected (encrypted) to: QEMU (z242_20_0) Send Ctrl+Alt+Del

student@CN-R2: ~
File Edit Tabs Help
student@CN-R2:~$ ping 10.10.10.1
PING 10.10.10.1 (10.10.10.1) 56(84) bytes of data:
64 bytes from 10.10.10.1: icmp_seq=1 ttl=64 time=0.416 ms
64 bytes from 10.10.10.1: icmp_seq=2 ttl=64 time=0.364 ms
64 bytes from 10.10.10.1: icmp_seq=3 ttl=64 time=0.560 ms
64 bytes from 10.10.10.1: icmp_seq=4 ttl=64 time=0.306 ms
64 bytes from 10.10.10.1: icmp_seq=5 ttl=64 time=0.309 ms
64 bytes from 10.10.10.1: icmp_seq=6 ttl=64 time=0.365 ms
64 bytes from 10.10.10.1: icmp_seq=7 ttl=64 time=0.373 ms
64 bytes from 10.10.10.1: icmp_seq=8 ttl=64 time=0.395 ms
64 bytes from 10.10.10.1: icmp_seq=9 ttl=64 time=0.343 ms
64 bytes from 10.10.10.1: icmp_seq=10 ttl=64 time=0.367 ms
64 bytes from 10.10.10.1: icmp_seq=11 ttl=64 time=0.438 ms
64 bytes from 10.10.10.1: icmp_seq=12 ttl=64 time=0.491 ms
64 bytes from 10.10.10.1: icmp_seq=13 ttl=64 time=0.413 ms
64 bytes from 10.10.10.1: icmp_seq=14 ttl=64 time=0.425 ms
^C
--- 10.10.10.1 ping statistics ---
14 packets transmitted, 14 received, 0% packet loss, time 324ms
rtt min/avg/max/mdev = 0.306/0.397/0.560/0.068 ms
student@CN-R2:~$
```

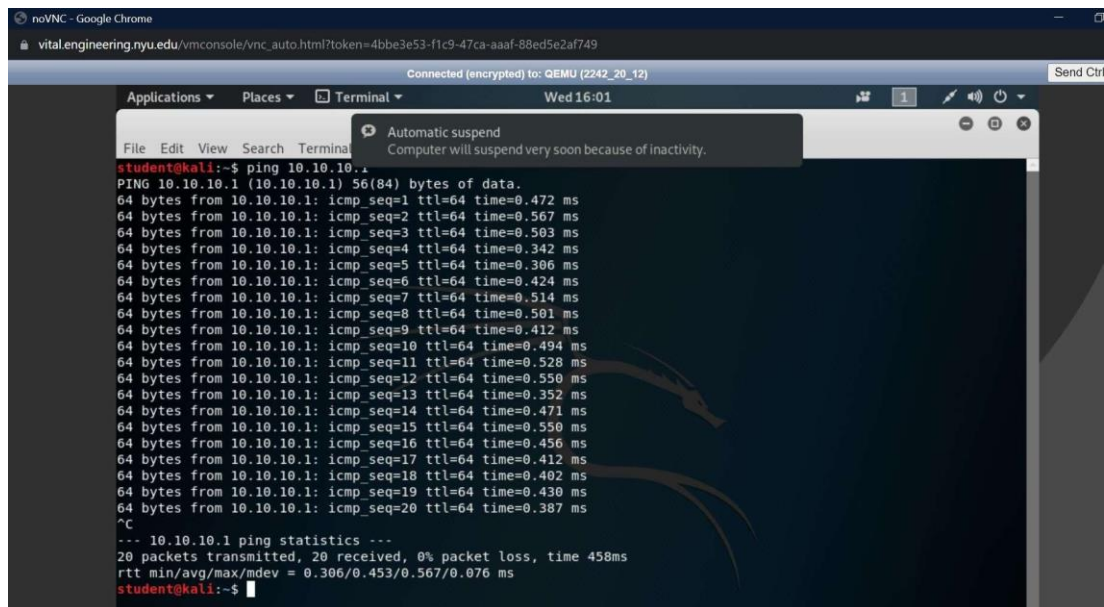
Ping from R2 to Kali



The screenshot shows a VNC window titled "noVNC - Google Chrome" with the URL "vital.engineering.nyu.edu/vmconsole/vnc_auto.html?token=66bd4636-9c9a-4925-8e7f-540f5b55cfe5". The desktop environment includes icons for "Trash", "LXTerminal", and "Wireshark". A terminal window titled "student@CN-R2: ~" is open, displaying the following output:

```
student@CN-R2: ~  
File Edit Tabs Help  
64 bytes from 10.10.10.1: icmp_seq=14 ttl=64 time=0.425 ms  
^C  
--- 10.10.10.1 ping statistics ---  
14 packets transmitted, 14 received, 0% packet loss, time 324ms  
rtt min/avg/max/mdev = 0.306/0.397/0.560/0.068 ms  
student@CN-R2:~$ ping 10.10.10.3  
PING 10.10.10.3 (10.10.10.3) 56(84) bytes of data.  
64 bytes from 10.10.10.3: icmp_seq=1 ttl=64 time=0.722 ms  
64 bytes from 10.10.10.3: icmp_seq=2 ttl=64 time=0.624 ms  
64 bytes from 10.10.10.3: icmp_seq=3 ttl=64 time=0.423 ms  
64 bytes from 10.10.10.3: icmp_seq=4 ttl=64 time=0.528 ms  
64 bytes from 10.10.10.3: icmp_seq=5 ttl=64 time=0.361 ms  
64 bytes from 10.10.10.3: icmp_seq=6 ttl=64 time=0.506 ms  
64 bytes from 10.10.10.3: icmp_seq=7 ttl=64 time=0.332 ms  
64 bytes from 10.10.10.3: icmp_seq=8 ttl=64 time=0.389 ms  
64 bytes from 10.10.10.3: icmp_seq=9 ttl=64 time=0.474 ms  
64 bytes from 10.10.10.3: icmp_seq=10 ttl=64 time=0.496 ms  
64 bytes from 10.10.10.3: icmp_seq=11 ttl=64 time=0.497 ms  
64 bytes from 10.10.10.3: icmp_seq=12 ttl=64 time=0.518 ms  
^C  
--- 10.10.10.3 ping statistics ---  
12 packets transmitted, 12 received, 0% packet loss, time 282ms  
rtt min/avg/max/mdev = 0.332/0.489/0.722/0.105 ms  
student@CN-R2:~$
```

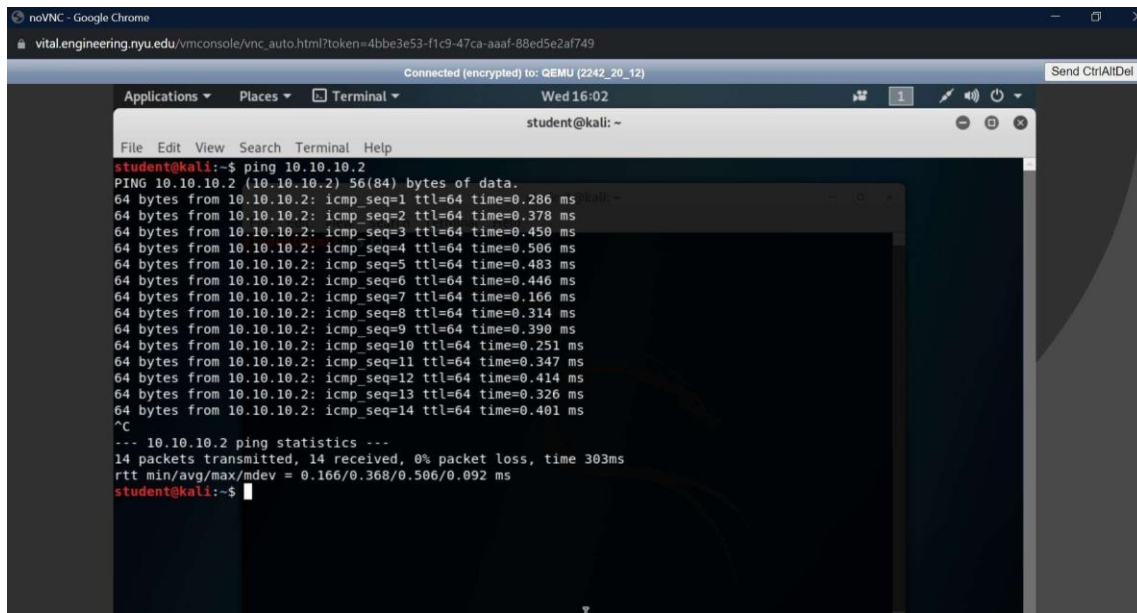
Ping from Kali to R1



The screenshot shows a VNC window titled "noVNC - Google Chrome" with the URL "vital.engineering.nyu.edu/vmconsole/vnc_auto.html?token=4bbe3e53-f1c9-47ca-aaaf-88ed5e2af749". The desktop environment includes icons for "Applications", "Places", "Terminal", and "Send Ctrl". A terminal window titled "student@kali: ~" is open, displaying the following output:

```
student@kali:~$ ping 10.10.10.1  
PING 10.10.10.1 (10.10.10.1) 56(84) bytes of data.  
64 bytes from 10.10.10.1: icmp_seq=1 ttl=64 time=0.472 ms  
64 bytes from 10.10.10.1: icmp_seq=2 ttl=64 time=0.567 ms  
64 bytes from 10.10.10.1: icmp_seq=3 ttl=64 time=0.503 ms  
64 bytes from 10.10.10.1: icmp_seq=4 ttl=64 time=0.342 ms  
64 bytes from 10.10.10.1: icmp_seq=5 ttl=64 time=0.306 ms  
64 bytes from 10.10.10.1: icmp_seq=6 ttl=64 time=0.424 ms  
64 bytes from 10.10.10.1: icmp_seq=7 ttl=64 time=0.514 ms  
64 bytes from 10.10.10.1: icmp_seq=8 ttl=64 time=0.501 ms  
64 bytes from 10.10.10.1: icmp_seq=9 ttl=64 time=0.412 ms  
64 bytes from 10.10.10.1: icmp_seq=10 ttl=64 time=0.494 ms  
64 bytes from 10.10.10.1: icmp_seq=11 ttl=64 time=0.528 ms  
64 bytes from 10.10.10.1: icmp_seq=12 ttl=64 time=0.550 ms  
64 bytes from 10.10.10.1: icmp_seq=13 ttl=64 time=0.352 ms  
64 bytes from 10.10.10.1: icmp_seq=14 ttl=64 time=0.471 ms  
64 bytes from 10.10.10.1: icmp_seq=15 ttl=64 time=0.550 ms  
64 bytes from 10.10.10.1: icmp_seq=16 ttl=64 time=0.456 ms  
64 bytes from 10.10.10.1: icmp_seq=17 ttl=64 time=0.412 ms  
64 bytes from 10.10.10.1: icmp_seq=18 ttl=64 time=0.402 ms  
64 bytes from 10.10.10.1: icmp_seq=19 ttl=64 time=0.430 ms  
64 bytes from 10.10.10.1: icmp_seq=20 ttl=64 time=0.387 ms  
^C  
--- 10.10.10.1 ping statistics ---  
20 packets transmitted, 20 received, 0% packet loss, time 458ms  
rtt min/avg/max/mdev = 0.306/0.453/0.567/0.076 ms  
student@kali:~$
```

Ping from Kali to R2



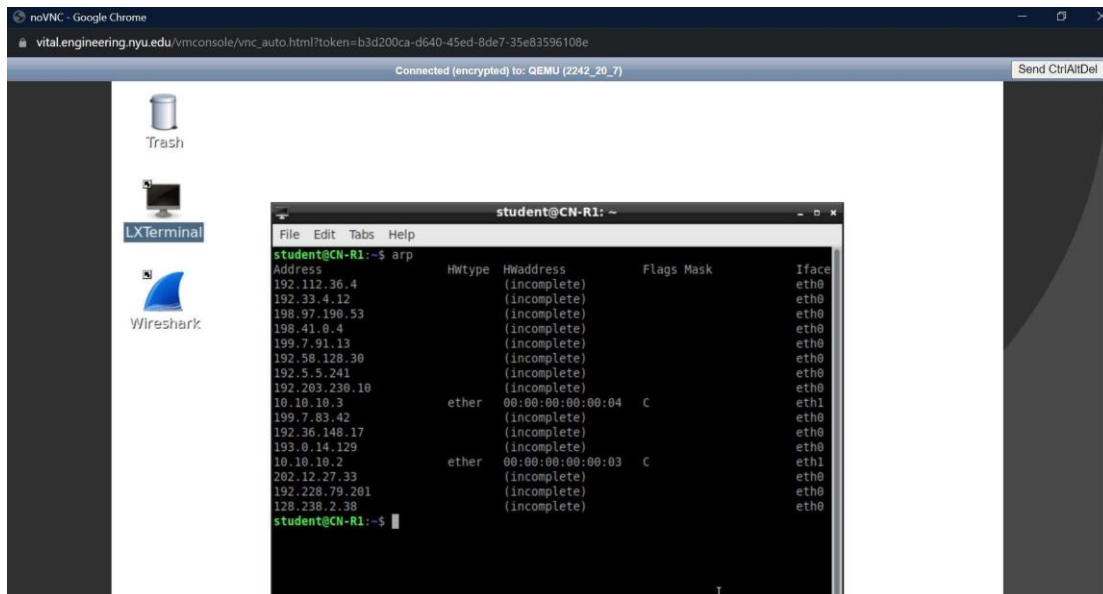
The screenshot shows a terminal window titled "student@kali: ~" with the following output:

```
student@kali:~$ ping 10.10.10.2
PING 10.10.10.2 (10.10.10.2) 56(84) bytes of data:
64 bytes from 10.10.10.2: icmp seq=1 ttl=64 time=0.286 ms
64 bytes from 10.10.10.2: icmp seq=2 ttl=64 time=0.378 ms
64 bytes from 10.10.10.2: icmp seq=3 ttl=64 time=0.450 ms
64 bytes from 10.10.10.2: icmp seq=4 ttl=64 time=0.506 ms
64 bytes from 10.10.10.2: icmp seq=5 ttl=64 time=0.483 ms
64 bytes from 10.10.10.2: icmp seq=6 ttl=64 time=0.446 ms
64 bytes from 10.10.10.2: icmp seq=7 ttl=64 time=0.166 ms
64 bytes from 10.10.10.2: icmp seq=8 ttl=64 time=0.314 ms
64 bytes from 10.10.10.2: icmp seq=9 ttl=64 time=0.390 ms
64 bytes from 10.10.10.2: icmp seq=10 ttl=64 time=0.251 ms
64 bytes from 10.10.10.2: icmp seq=11 ttl=64 time=0.347 ms
64 bytes from 10.10.10.2: icmp seq=12 ttl=64 time=0.414 ms
64 bytes from 10.10.10.2: icmp seq=13 ttl=64 time=0.326 ms
64 bytes from 10.10.10.2: icmp seq=14 ttl=64 time=0.401 ms
^C
--- 10.10.10.2 ping statistics ---
14 packets transmitted, 14 received, 0% packet loss, time 303ms
rtt min/avg/max/mdev = 0.166/0.368/0.506/0.092 ms
student@kali:~$
```

Screenshot of the ARP tables on R1, R2, and Kali

After pings

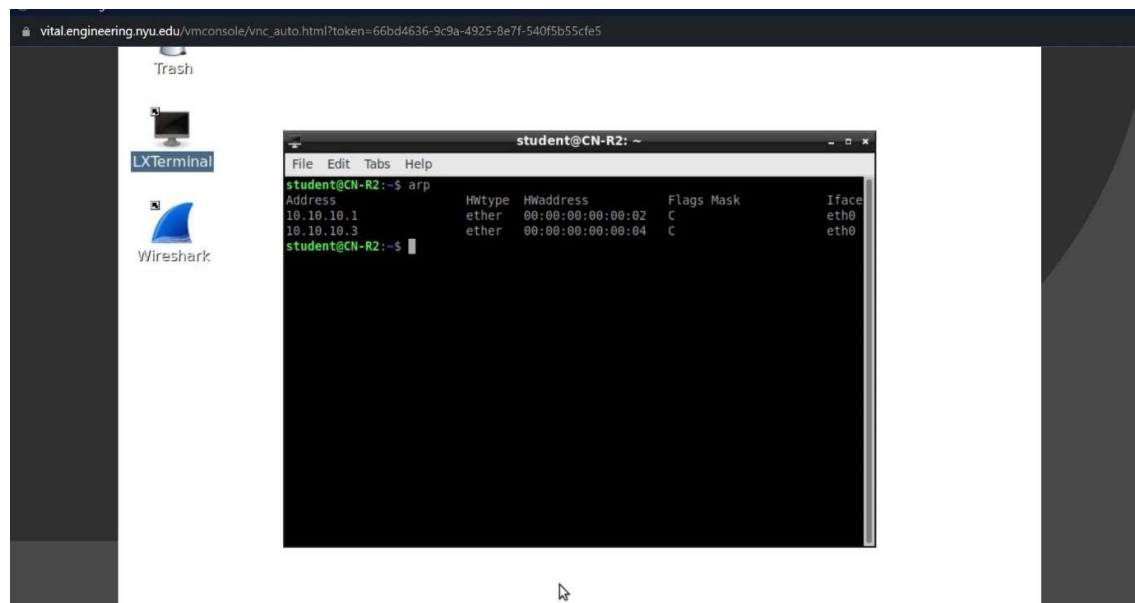
R1 ARP



The screenshot shows a terminal window titled "student@CN-R1: ~" with the following output:

```
student@CN-R1:~$ arp
Address                  Hwtype      Hwaddress            Flags Mask          Iface
192.112.36.4             (incomplete)                   eth0
192.33.4.12              (incomplete)                   eth0
198.97.190.53            (incomplete)                   eth0
198.41.0.4               (incomplete)                   eth0
199.7.91.13              (incomplete)                   eth0
192.58.128.30            (incomplete)                   eth0
192.5.5.241              (incomplete)                   eth0
192.203.230.10           (incomplete)                   eth0
10.10.10.3               ether       00:00:00:00:00:04      C                   eth1
199.7.83.42              (incomplete)                   eth0
192.36.148.17            (incomplete)                   eth0
193.0.14.129             (incomplete)                   eth0
10.10.10.2               ether       00:00:00:00:00:03      C                   eth1
202.12.27.33             (incomplete)                   eth0
192.228.79.201           (incomplete)                   eth0
128.238.2.38             (incomplete)                   eth0
student@CN-R1:~$
```

R2 arp



Kali arp

