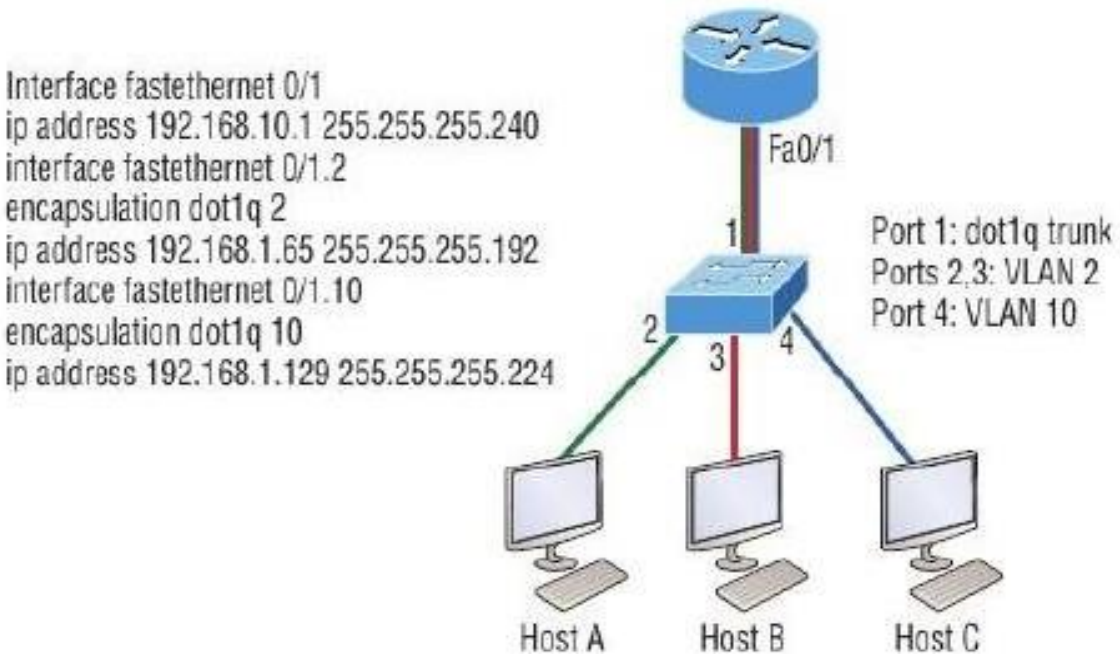
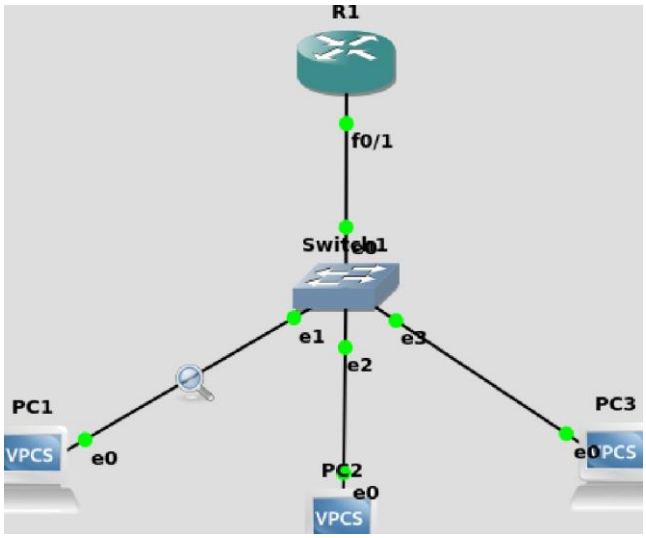
Q 1. Configure following inter-VLAN example in GNS3 and verify the working using Wireshark tool.






```
R1#enable
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#interface f0/0
R1(config-if)#end
R1#
*Mar  1 00:03:07.627: %SYS-5-CONFIG_I: Configured from console by console
R1#enable
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#interface f0/1
R1(config-if)#ip address 192.168.10.1 255.255.255.240
R1(config-if)#interface f0/1.2
R1(config-subif)#encapsulation dot1q2
                                    ^
% Invalid input detected at '^' marker.

R1(config-subif)#encapsulation dot1q 2
R1(config-subif)#ip add 1
% Incomplete command.

R1(config-subif)#ip address 192.168.1.65 255.255.255.192
R1(config-subif)#interface f0/1.10
R1(config-subif)#encapsulation dot1q 10
R1(config-subif)#ip address 192.168.1.129 255.255.255.224
R1(config-subif)#no shut
R1(config-subif)#exit
R1(config)#end
R1#write
*Mar  1 00:09:11.131: %SYS-5-CONFIG_I: Configured from console by console
R1#write
Building configuration...
```

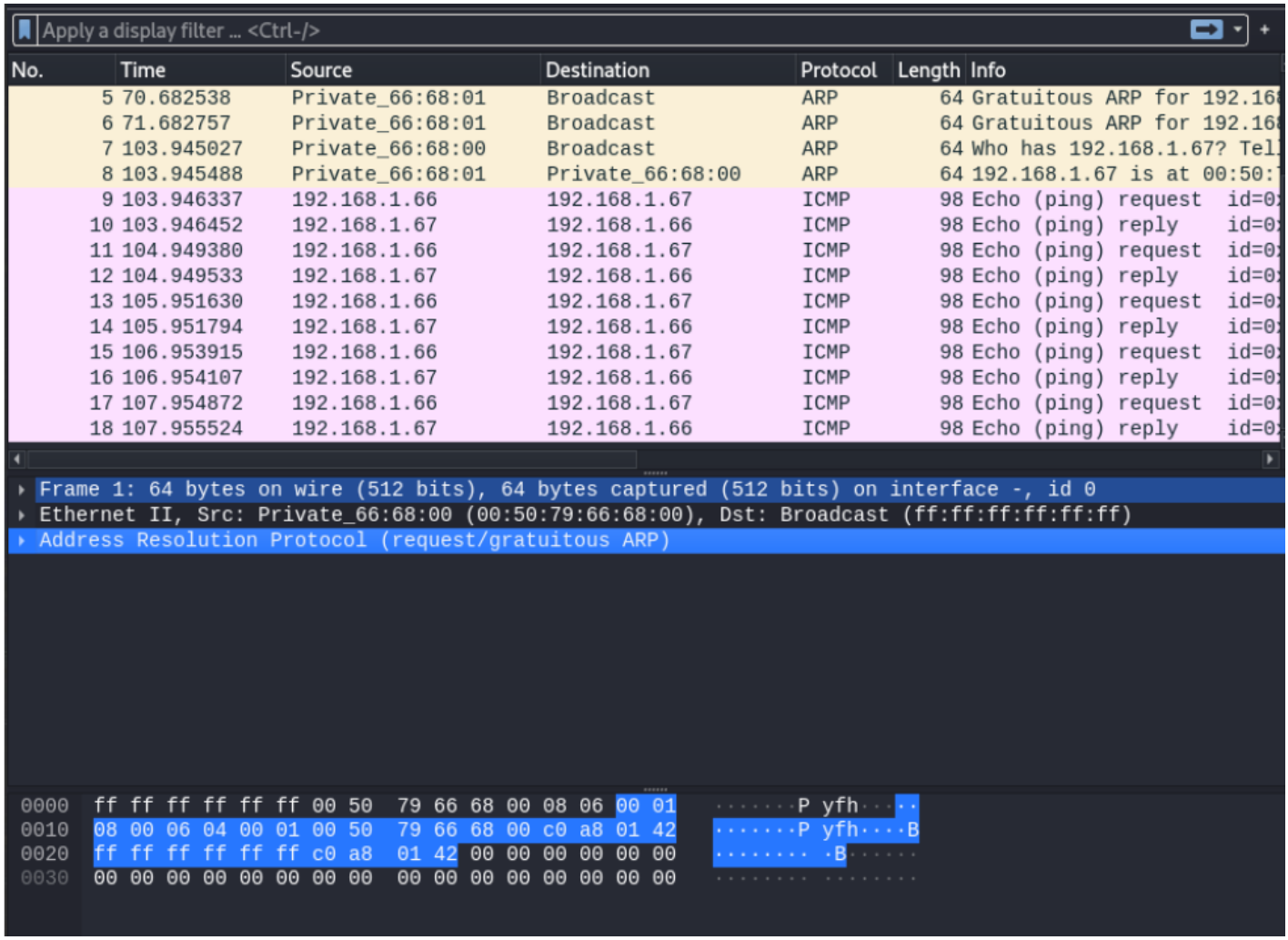
(Accidently couldn't take screenshot of PC1)

PC1-
(ping 192.168.1.65)

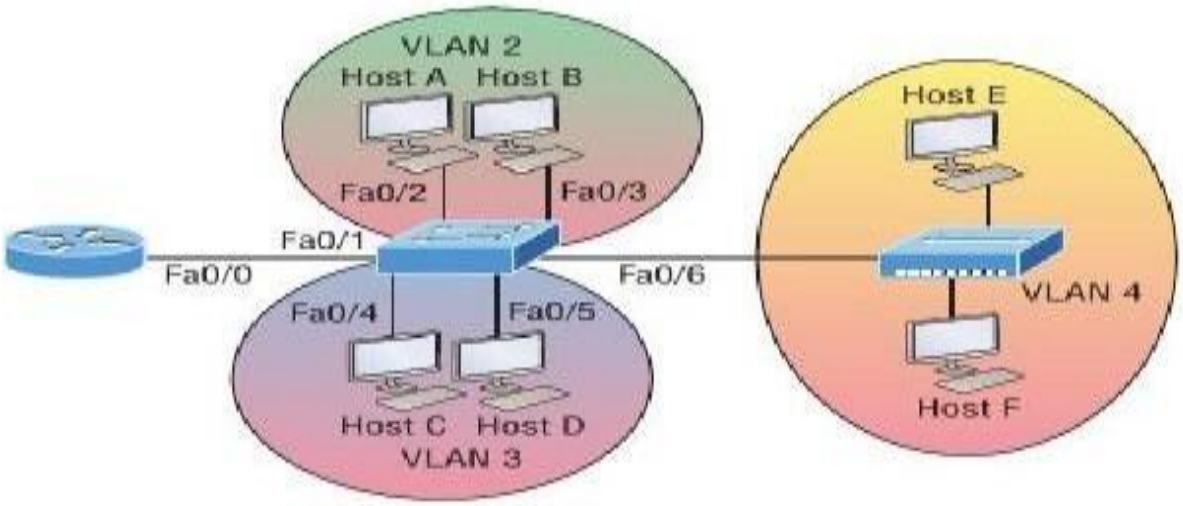
(ping 192.168.1.129)

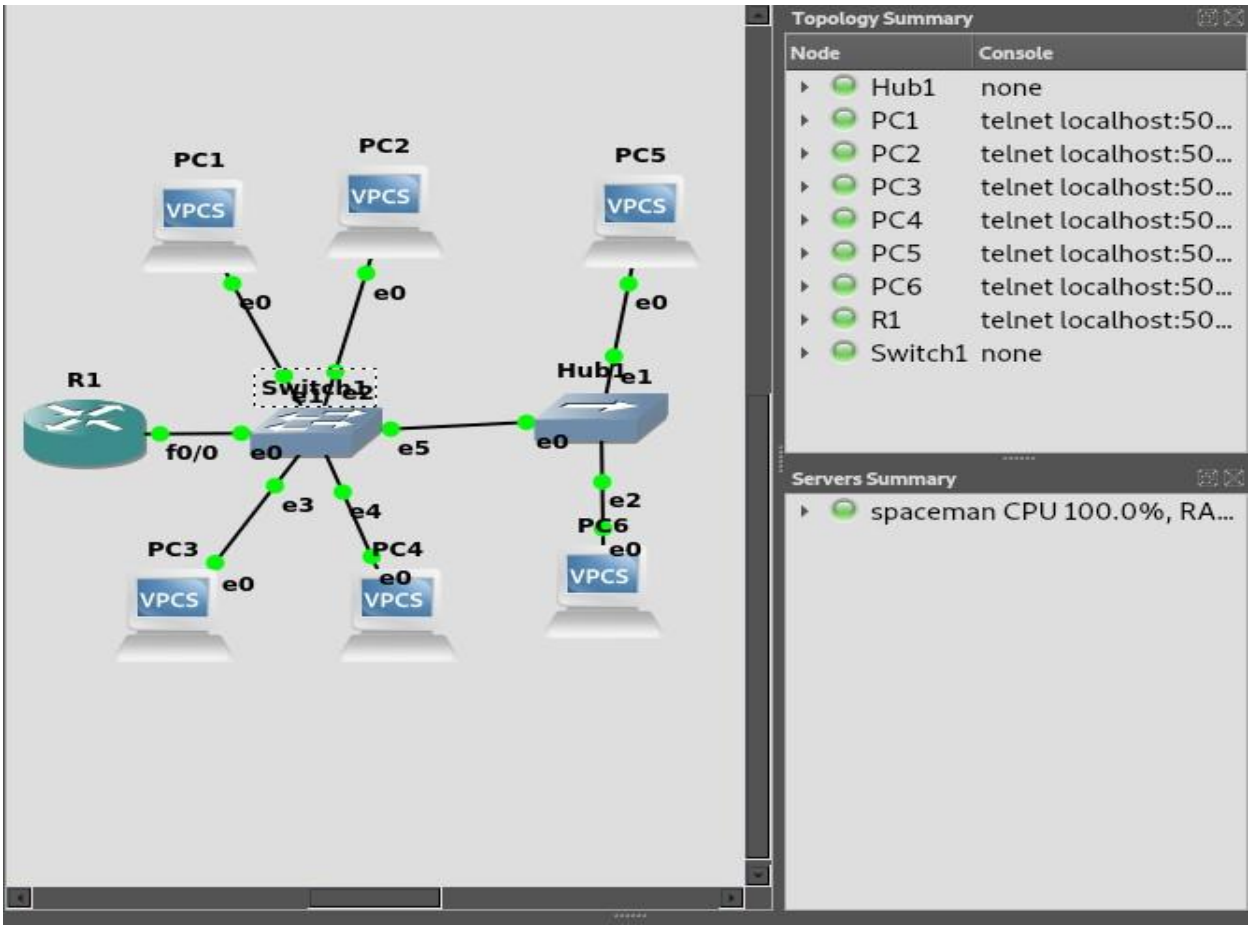
```
PC2> ip 192.168.1.67/24 192.168.1.65
Checking for duplicate address...
PC2 : 192.168.1.67 255.255.255.0 gateway 192.168.1.65
```

```
PC3> ip 192.168.1.130/24 192.168.1.129
Checking for duplicate address...
PC3 : 192.168.1.130 255.255.255.0 gateway 192.168.1.129

PC3>
```



Q2. Configure following inter-VLAN example in GNS3 and verify the working using Wireshark tool.



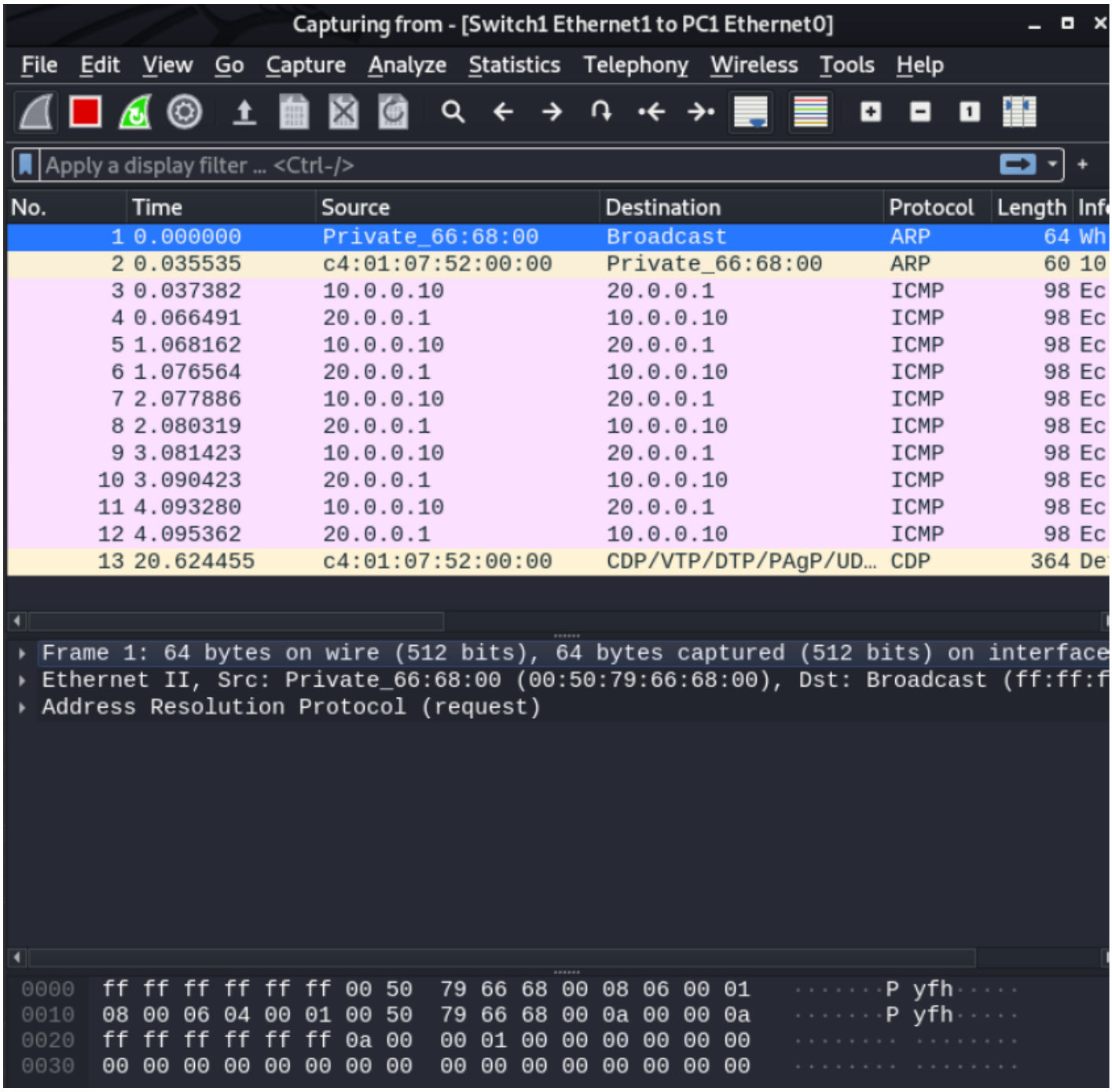

PC1
VPCS
PC2
VPCS
PC5
VPCS
e0
e0
e0
R1
Switch1
e1
e2
Hub1
e1
f0/0
e0
e5
e0
e3
e4
e2
PC6
e0
PC3
e0
PC4
e0
VPCS
VPCS
VPCS
Topology Summary
Node
Console
Hub1 none
PC1 telnet localhost:50...
PC2 telnet localhost:50...
PC3 telnet localhost:50...
PC4 telnet localhost:50...
PC5 telnet localhost:50...
PC6 telnet localhost:50...
R1 telnet localhost:50...
Switch1 none
Servers Summary
spaceman CPU 100.0%, RA...

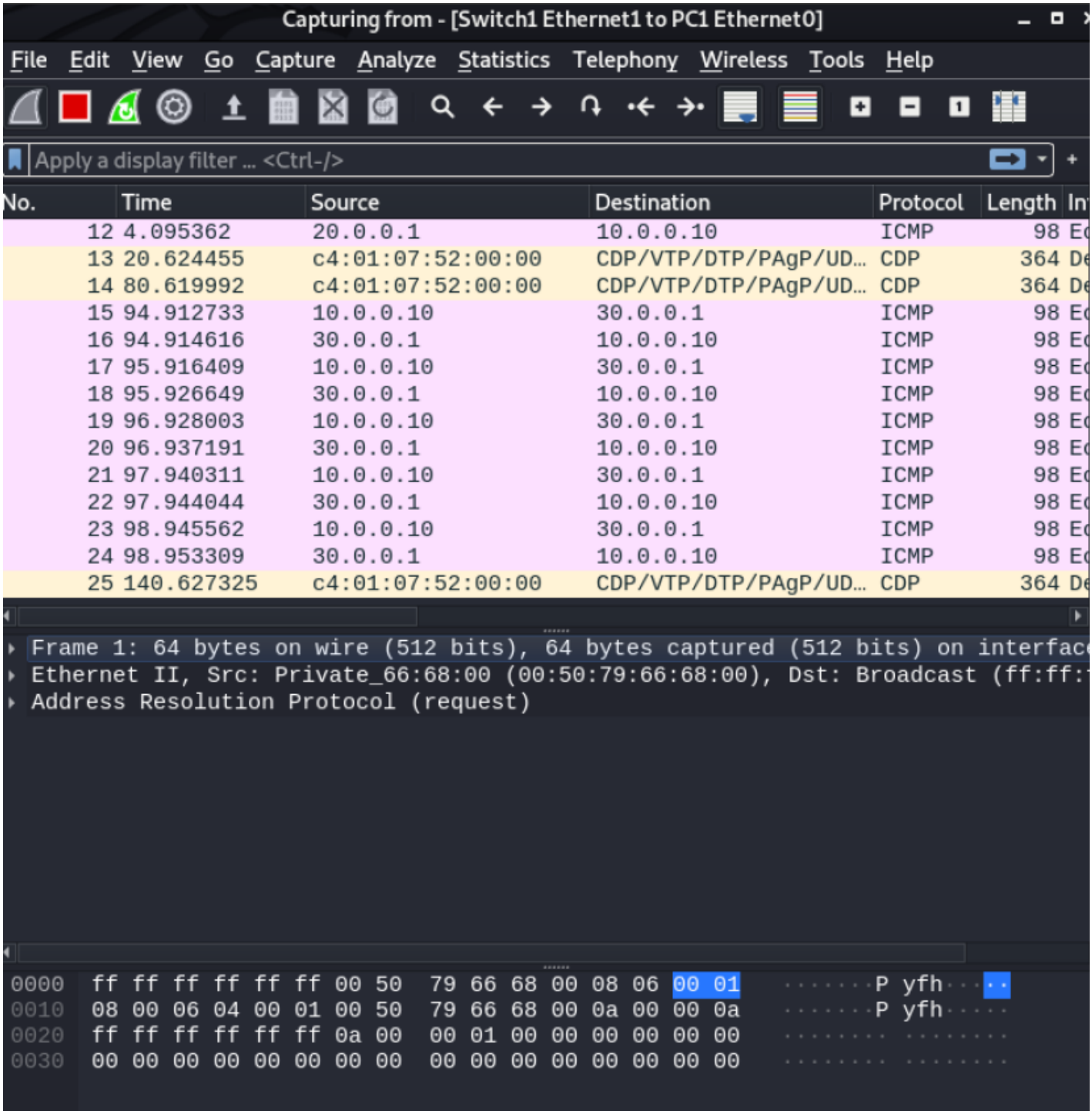
```
R1#enable
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#interface f0/0
R1(config-if)#ip address 10.0.0.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
*Mar  1 00:09:44.211: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar  1 00:09:45.211: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
R1(config-if)#interface f0/0.2
R1(config-subif)#encapsulation dot1q 2
R1(config-subif)#
*Mar  1 00:10:45.735: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
R1(config-subif)#ip address 20.0.0.1 255.255.255.0
R1(config-subif)#interface f0/0.3
R1(config-subif)#encapsulation dot1q 3
R1(config-subif)#ip address 30.0.0.1 255.255.255.0
R1(config-subif)#
```

```
PC1> ip 10.0.0.10 255.255.255.0 10.0.0.1
Checking for duplicate address...
PC1 : 10.0.0.10 255.255.255.0 gateway 10.0.0.1

PC1> ping 20.0.0.1

84 bytes from 20.0.0.1 icmp_seq=1 ttl=255 time=29.346 ms
84 bytes from 20.0.0.1 icmp_seq=2 ttl=255 time=8.669 ms
84 bytes from 20.0.0.1 icmp_seq=3 ttl=255 time=2.714 ms
84 bytes from 20.0.0.1 icmp_seq=4 ttl=255 time=9.256 ms
84 bytes from 20.0.0.1 icmp_seq=5 ttl=255 time=2.301 ms

PC1> ping 30.0.0.1

84 bytes from 30.0.0.1 icmp_seq=1 ttl=255 time=3.063 ms
84 bytes from 30.0.0.1 icmp_seq=2 ttl=255 time=10.511 ms
84 bytes from 30.0.0.1 icmp_seq=3 ttl=255 time=9.509 ms
84 bytes from 30.0.0.1 icmp_seq=4 ttl=255 time=4.108 ms
84 bytes from 30.0.0.1 icmp_seq=5 ttl=255 time=7.980 ms

PC1>
```

```
PC6> ip 30.0.0.10 255.255.255.255.0 30.0.0.1
Checking for duplicate address...
PC6 : 30.0.0.10 255.255.255.0 gateway 30.0.0.1

PC6>
```

```
PC4> ip 20.0.0.10 255.255.255.0 20.0.0.1
Checking for duplicate address...
PC4 : 20.0.0.10 255.255.255.0 gateway 20.0.0.1

PC4>
```


Capturing from - [Switch1 Ethernet1 to PC1 Ethernet0]
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
No. Time Source Destination Protocol Length Inf
1 0.000000 Private_66:68:00 Broadcast ARP 64 Wh
2 0.035535 c4:01:07:52:00:00 Private_66:68:00 ARP 60 10
3 0.037382 10.0.0.10 20.0.0.1 ICMP 98 Ec
4 0.066491 20.0.0.1 10.0.0.10 ICMP 98 Ec
5 1.068162 10.0.0.10 20.0.0.1 ICMP 98 Ec
6 1.076564 20.0.0.1 10.0.0.10 ICMP 98 Ec
7 2.077886 10.0.0.10 20.0.0.1 ICMP 98 Ec
8 2.080319 20.0.0.1 10.0.0.10 ICMP 98 Ec
9 3.081423 10.0.0.10 20.0.0.1 ICMP 98 Ec
10 3.090423 20.0.0.1 10.0.0.10 ICMP 98 Ec
11 4.093280 10.0.0.10 20.0.0.1 ICMP 98 Ec
12 4.095362 20.0.0.1 10.0.0.10 ICMP 98 Ec
13 20.624455 c4:01:07:52:00:00 CDP/VTP/DTP/PAgP/UD... CDP 364 De
Frame 1: 64 bytes on wire (512 bits), 64 bytes captured (512 bits) on interface
Ethernet II, Src: Private_66:68:00 (00:50:79:66:68:00), Dst: Broadcast (ff:ff:f
Address Resolution Protocol (request)
0000 ff ff ff ff ff ff 00 50 79 66 68 00 08 06 00 01 .....P yfh.....
0010 08 00 06 04 00 01 00 50 79 66 68 00 0a 00 00 0a .....P yfh.....
0020 ff ff ff ff ff ff 0a 00 00 01 00 00 00 00 00 00 ....
0030 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ....


Capturing from - [Switch1 Ethernet1 to PC1 Ethernet0]
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
No. Time Source Destination Protocol Length
12 4.095362 20.0.0.1 10.0.0.10 ICMP 98
13 20.624455 c4:01:07:52:00:00 CDP/VTP/DTP/PAgP/UD… CDP 364
14 80.619992 c4:01:07:52:00:00 CDP/VTP/DTP/PAgP/UD… CDP 364
15 94.912733 10.0.0.10 30.0.0.1 ICMP 98
16 94.914616 30.0.0.1 10.0.0.10 ICMP 98
17 95.916409 10.0.0.10 30.0.0.1 ICMP 98
18 95.926649 30.0.0.1 10.0.0.10 ICMP 98
19 96.928003 10.0.0.10 30.0.0.1 ICMP 98
20 96.937191 30.0.0.1 10.0.0.10 ICMP 98
21 97.940311 10.0.0.10 30.0.0.1 ICMP 98
22 97.944044 30.0.0.1 10.0.0.10 ICMP 98
23 98.945562 10.0.0.10 30.0.0.1 ICMP 98
24 98.953309 30.0.0.1 10.0.0.10 ICMP 98
25 140.627325 c4:01:07:52:00:00 CDP/VTP/DTP/PAgP/UD… CDP 364
Frame 1: 64 bytes on wire (512 bits), 64 bytes captured (512 bits) on interfac
Ethernet II, Src: Private_66:68:00 (00:50:79:66:68:00), Dst: Broadcast (ff:ff:
Address Resolution Protocol (request)
0000 ff ff ff ff ff ff 00 50 79 66 68 00 08 06 00 01 P yfh
0010 08 00 06 04 00 01 00 50 79 66 68 00 0a 00 00 0a P yfh
0020 ff ff ff ff ff ff 0a 00 00 01 00 00 00 00 00 00
0030 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00