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CN LAB – 5 : Study of ARP, Subnetting and Supernetting using GNS3

Q5.1) In this exercise you study how the network prefixes (netmasks) play a role when hosts determine if a datagram can be directly delivered or if it must be sent to a router. This part uses the network setup shown in Figure 5.1.

The network includes one router, four hosts and two hubs. The IP addresses of all devices are given in Figure 5.2. Here, each host has only a default route. In other words, the routing table at a host only knows about the directly connected networks and the default gateway.

Exploring the role of prefixes at hosts

In this exercise, you explore how hosts that are connected to the same local area network, but that have different netmasks, communicate or fail to communicate.

(1) Configure the hosts and the router to conform to the topology shown in Figure 5.2, using

the IP addresses as given in Figure 5.2. Note that PC2, PC3, and PC4 have different netmasks.

(2) Add Router1 as default gateway on all hosts. (PC1, PC2, PC3, and PC4).

(3) Issue ping commands from PC1

i) Clear the ARP table on all PCs.

ii) Start Wireshark on PC1 and on PC3, and set the capture filter to capture ICMP and

ARP packets only.

iii) Issue a ping command from PC1 to PC3 for at least two sends (-c2).

iv) Save the output of the ping command at PC1 and the output of Wireshark on PC1

and PC3.

(4) Save the ARP tables, routing tables, and routing caches of each host. Please note that

these are the tables entries from Step 3 after the ping commands are issued.

(5) Issue ping commands from PC3 to PC4

i) Clear the ARP table on all PCs.

ii) Start Wireshark on PC3, and set the capture filter to capture ICMP and ARP packets

only.

iii) Check the ARP table, routing table, and routing cache of each host.

Save the output.

Please note that these are the table entries from Step 4 before the ping is issued.

- Issue a ping command from PC3 to PC4 for at least three sends (-c 3). Save the output of the ping command and the output of Wireshark on PC3. Save the ARP table, routing table, and routing cache of PC3. Please note that these are the table entries from Step 4 after the ping commands are issued.
- Repeat Step 4, but this time issues a ping from PC3 to PC2. Note that once an entry is made in the routing cache, you cannot repeat the previous experiment to obtain the same results. You have to wait until the routing cache is reset or you can delete all the routing caches on all devices.

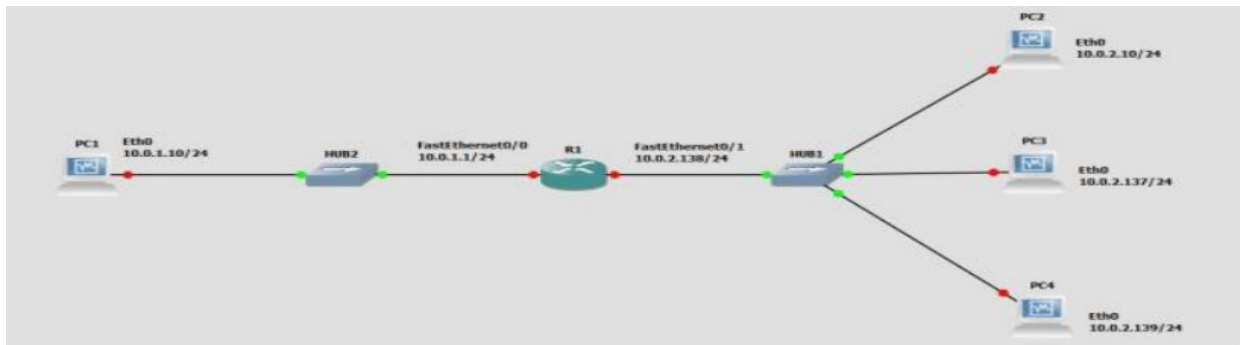
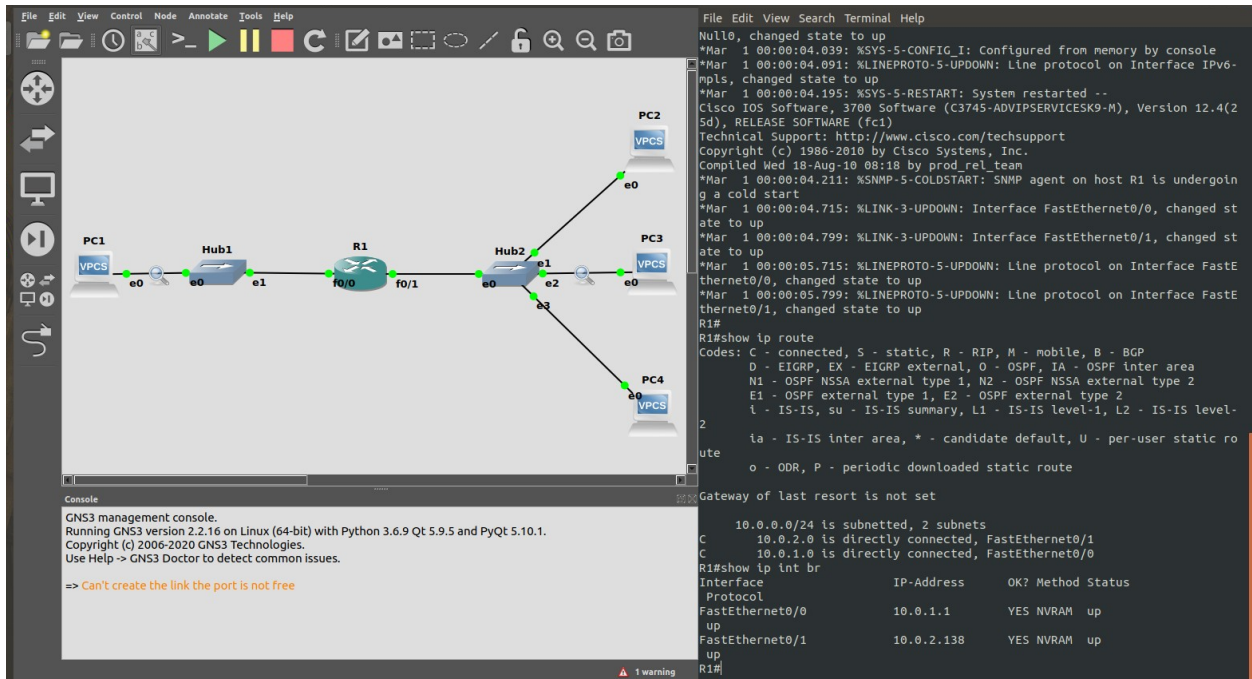


Figure 5.1: Network topology

Linux PC	Ethernet Interface eth0	Ethernet Interface eth1
PC1	10.0.1.10 / 24	Disabled
PC2	10.0.2.10 / 24	Disabled
PC3	10.0.2.137 / 29	Disabled
PC4	10.0.2.139 / 24	Disabled
Cisco Routers	FastEthernet0/0	FastEthernet0/1
Router1	10.0.1.1 / 24	10.0.2.138 / 24

Figure 5.2

Solution :



The image shows a GNS3 network diagram and terminal output. The diagram illustrates a network topology with two hubs (Hub1 and Hub2) connected to a central router (R1). Hub1 is connected to PC1 and PC2, while Hub2 is connected to PC3 and PC4. The router R1 is connected to both hubs. The terminal output shows the configuration of the router R1, including the configuration of interfaces, IP addresses, and the execution of the 'show ip route' command. The output also shows the status of the interfaces and the routing table.

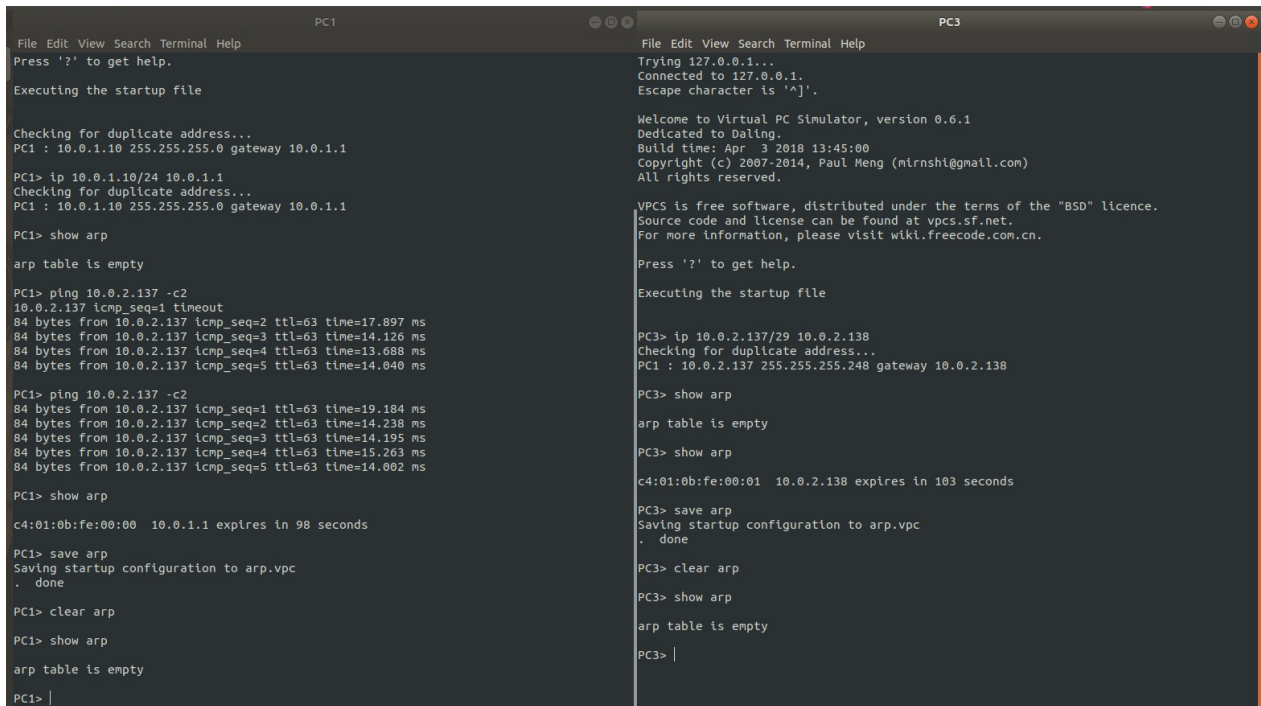
```
File Edit View Control Mode Annotate Tools Help
GNS3 management console.
Running GNS3 version 2.2.16 on Linux (64-bit) with Python 3.6.9 Qt 5.9.5 and PyQt 5.10.1.
Copyright (c) 2006-2020 GNS3 Technologies.
Use Help -> GNS3 Doctor to detect common issues.
=> Can't create the link the port is not free

File Edit View Search Terminal Help
Null0, changed state to up
*Mar 1 00:00:04.039: %SYS-5-CONFIG_I: Configured from memory by console
*Mar 1 00:00:04.091: %LINEPROTO-5-UPDOWN: Line protocol on Interface IPv6-
mpls, changed state to up
*Mar 1 00:00:04.195: %SYS-5-RESTART: System restarted --
Cisco IOS Software, 3700 Software (C3745-ADVIPSERVICESK9-M), Version 12.4(2
5d), RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2010 by Cisco Systems, Inc.
Compiled Wed 18-Aug-10 08:18 by prod_rel_team
*Mar 1 00:00:04.211: %SNMP-5-COLDSTART: SNMP agent on host R1 is undergoin
g a cold start
*Mar 1 00:00:04.715: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed st
ate to up
*Mar 1 00:00:04.799: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed st
ate to up
*Mar 1 00:00:05.715: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastE
thernet0/0, changed state to up
*Mar 1 00:00:05.799: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastE
thernet0/1, changed state to up
R1#
R1#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
I - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-
2
ia - IS-IS inter area, * - candidate default, U - per-user static ro
ute
o - ODR, P - periodic downloaded static route

Gateway of last resort is not set

10.0.0.0/24 is subnetted, 2 subnets
C 10.0.2.0 is directly connected, FastEthernet0/1
C 10.0.1.0 is directly connected, FastEthernet0/0
R1#show ip int br
Interface IP-Address OK? Method Status
Protocol
FastEthernet0/0 10.0.1.1 YES NVRAM up
up
FastEthernet0/1 10.0.2.138 YES NVRAM up
up
R1#
```

Ping from PC1 to PC3 :



The image shows the terminal output for PC1 and PC3. PC1 is configured with IP 10.0.1.10 and gateway 10.0.1.1. PC3 is configured with IP 10.0.2.137 and gateway 10.0.2.138. The output shows the execution of the 'ping' command from PC1 to PC3, which is successful. The output also shows the 'show arp' command, which displays the ARP table for each PC.

```
File Edit View Search Terminal Help
Press '?' to get help.
Executing the startup file

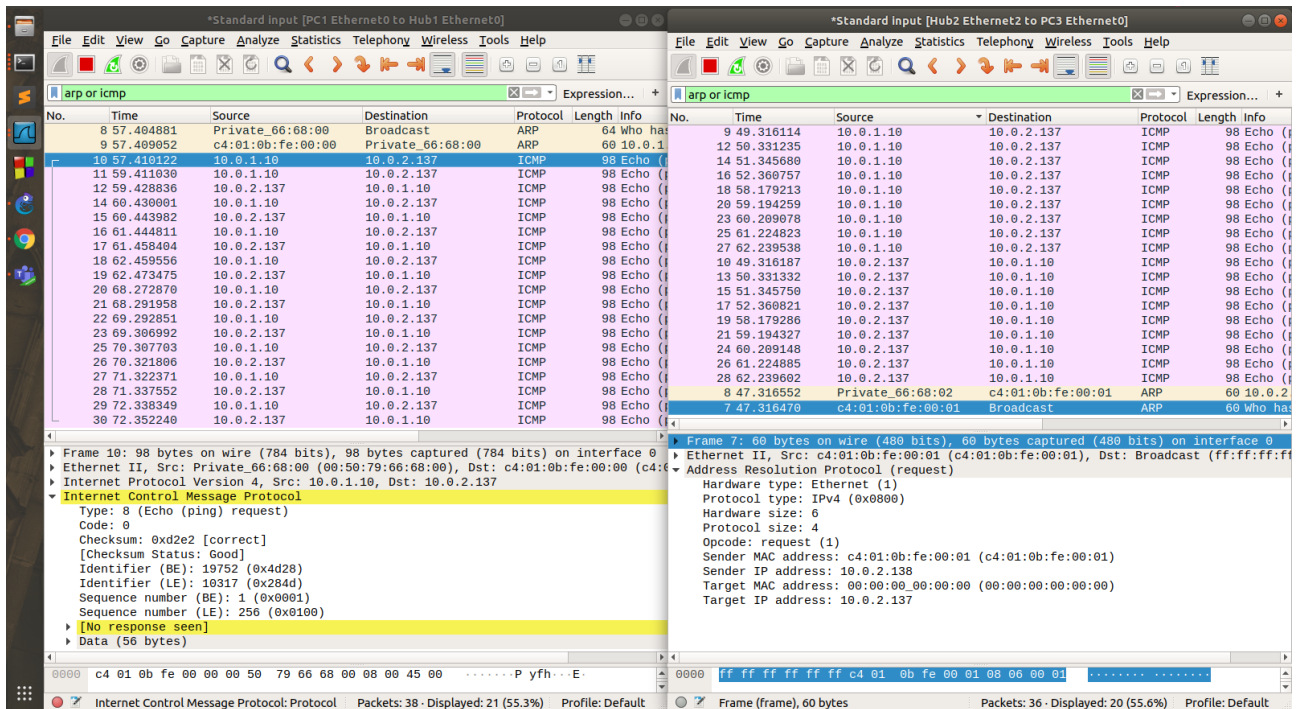
Checking for duplicate address...
PC1 : 10.0.1.10 255.255.255.0 gateway 10.0.1.1
PC1> ip 10.0.1.10/24 10.0.1.1
Checking for duplicate address...
PC1 : 10.0.1.10 255.255.255.0 gateway 10.0.1.1
PC1> show arp
arp table is empty
PC1> ping 10.0.2.137 -c2
10.0.2.137 icmp_seq=1 timeout
84 bytes from 10.0.2.137 icmp_seq=2 ttl=63 time=17.897 ms
84 bytes from 10.0.2.137 icmp_seq=3 ttl=63 time=14.126 ms
84 bytes from 10.0.2.137 icmp_seq=4 ttl=63 time=13.688 ms
84 bytes from 10.0.2.137 icmp_seq=5 ttl=63 time=14.040 ms
PC1> ping 10.0.2.137 -c2
84 bytes from 10.0.2.137 icmp_seq=1 ttl=63 time=19.184 ms
84 bytes from 10.0.2.137 icmp_seq=2 ttl=63 time=14.238 ms
84 bytes from 10.0.2.137 icmp_seq=3 ttl=63 time=14.195 ms
84 bytes from 10.0.2.137 icmp_seq=4 ttl=63 time=15.263 ms
84 bytes from 10.0.2.137 icmp_seq=5 ttl=63 time=14.002 ms
PC1> show arp
c4:01:0b:fe:00:00 10.0.1.1 expires in 98 seconds
PC1> save arp
Saving startup configuration to arp.vpc
. done
PC1> clear arp
PC1> show arp
arp table is empty
PC1> |

File Edit View Search Terminal Help
Trying 127.0.0.1...
Connected to 127.0.0.1.
Escape character is '^J'.

Welcome to Virtual PC Simulator, version 0.6.1
Dedicated to Dalling.
Build time: Apr 3 2018 13:45:00
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
All rights reserved.

VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.
Executing the startup file
PC3> ip 10.0.2.137/29 10.0.2.138
Checking for duplicate address...
PC1 : 10.0.2.137 255.255.255.248 gateway 10.0.2.138
PC3> show arp
arp table is empty
PC3> show arp
c4:01:0b:fe:00:01 10.0.2.138 expires in 103 seconds
PC3> save arp
Saving startup configuration to arp.vpc
. done
PC3> clear arp
PC3> show arp
arp table is empty
PC3> |
```



Ping from PC1 to PC2 and PC4 :

```
PC1> clear arp

PC1> ping 10.0.2.10
84 bytes from 10.0.2.10 icmp_seq=1 ttl=63 time=19.660 ms
84 bytes from 10.0.2.10 icmp_seq=2 ttl=63 time=14.065 ms
84 bytes from 10.0.2.10 icmp_seq=3 ttl=63 time=14.131 ms
84 bytes from 10.0.2.10 icmp_seq=4 ttl=63 time=14.150 ms
84 bytes from 10.0.2.10 icmp_seq=5 ttl=63 time=14.135 ms

PC1> ping 10.0.2.139
10.0.2.139 icmp_seq=1 timeout
84 bytes from 10.0.2.139 icmp_seq=2 ttl=63 time=17.439 ms
84 bytes from 10.0.2.139 icmp_seq=3 ttl=63 time=14.629 ms
84 bytes from 10.0.2.139 icmp_seq=4 ttl=63 time=14.876 ms
84 bytes from 10.0.2.139 icmp_seq=5 ttl=63 time=14.054 ms

PC1> show arp

c4:01:0b:fe:00:00 10.0.1.1 expires in 94 seconds

PC1> save
Saving startup configuration to startup.vpc
. done

PC1> |
```

Ping from PC3 to PC4 :

<pre>PC3> clear arp PC3> show arp arp table is empty PC3> ping 10.0.2.139 -c3 84 bytes from 10.0.2.139 icmp_seq=1 ttl=64 time=0.127 ms 84 bytes from 10.0.2.139 icmp_seq=2 ttl=64 time=0.230 ms 84 bytes from 10.0.2.139 icmp_seq=3 ttl=64 time=0.218 ms 84 bytes from 10.0.2.139 icmp_seq=4 ttl=64 time=0.218 ms 84 bytes from 10.0.2.139 icmp_seq=5 ttl=64 time=0.184 ms PC3> show arp 00:50:79:66:68:03 10.0.2.139 expires in 111 seconds PC3> save Saving startup configuration to startup.vpc . done PC3> </pre>	<pre>PC4> clear arp PC4> show arp 00:50:79:66:68:02 10.0.2.137 expires in 100 seconds PC4> save Saving startup configuration to startup.vpc . done PC4> </pre>
---	---

Ping from PC3 to PC2 :

```
PC2> save
Saving startup configuration to startup.vpc
. done

PC2> clear arp

PC2> show arp

c4:01:0b:fe:00:01 10.0.2.138 expires in 106 seconds

PC2> save
Saving startup configuration to startup.vpc
. done

PC2> |

PC3> ping 10.0.2.10
10.0.2.10 icmp_seq=1 timeout
84 bytes from 10.0.2.10 icmp_seq=2 ttl=63 time=28.622 ms
84 bytes from 10.0.2.10 icmp_seq=3 ttl=63 time=23.997 ms
84 bytes from 10.0.2.10 icmp_seq=4 ttl=63 time=24.641 ms
84 bytes from 10.0.2.10 icmp_seq=5 ttl=63 time=24.552 ms

PC3> show arp

c4:01:0b:fe:00:01 10.0.2.138 expires in 102 seconds

PC3> save
Saving startup configuration to startup.vpc
. done

PC3> |
```

The image displays a GNS3 network simulation environment. On the left, a network diagram shows a central router R1 connected to two hubs, Hub1 and Hub2. Hub1 is connected to PC1, and Hub2 is connected to PC2 and PC3. The router R1 has interfaces f0/0 and f0/1. The PCs are connected to the hubs via their e0 interfaces. The console output at the bottom left shows the GNS3 management console running on Linux, with a warning message: "=> Can't create the link the port is not free".

On the right, a packet capture window titled "arp or icmp" shows a list of captured packets. The table below represents the data shown in the capture window:

No.	Time	Source	Destination	Protocol	Length	Info
140	814.761759	10.0.2.10	10.0.2.137	ICMP	98	Echo
141	815.762713	10.0.2.137	10.0.2.10	ICMP	98	Echo
142	815.766478	10.0.2.138	10.0.2.137	ICMP	70	Redirect
143	815.776547	10.0.2.137	10.0.2.10	ICMP	98	Echo
144	815.776647	10.0.2.10	10.0.2.137	ICMP	98	Echo
145	815.786632	10.0.2.10	10.0.2.137	ICMP	98	Echo
146	816.786964	10.0.2.137	10.0.2.10	ICMP	98	Echo
147	816.781347	10.0.2.138	10.0.2.137	ICMP	70	Redirect
148	816.801387	10.0.2.137	10.0.2.10	ICMP	98	Echo
149	816.801442	10.0.2.10	10.0.2.137	ICMP	98	Echo
150	816.811453	10.0.2.10	10.0.2.137	ICMP	98	Echo
151	817.812220	10.0.2.137	10.0.2.10	ICMP	98	Echo
152	817.816523	10.0.2.138	10.0.2.137	ICMP	70	Redirect
153	817.826573	10.0.2.137	10.0.2.10	ICMP	98	Echo
154	817.826629	10.0.2.10	10.0.2.137	ICMP	98	Echo
155	817.836687	10.0.2.10	10.0.2.137	ICMP	98	Echo

The packet capture details for Frame 152 (70 bytes on wire, 70 bytes captured) are shown below:

- Frame 152: 70 bytes on wire (560 bits), 70 bytes captured (560 bits) on interface
- Ethernet II, Src: c4:01:0b:fe:00:01 (c4:01:0b:fe:00:01), Dst: Private_66:68:02 (00:0c:29:66:68:02)
- Internet Protocol Version 4, Src: 10.0.2.138, Dst: 10.0.2.137
- Internet Control Message Protocol
 - Type: 5 (Redirect)
 - Code: 1 (Redirect for host)
 - Checksum: 0xc0e8 [correct]
 - [Checksum Status: Good]
 - Gateway address: 10.0.2.10
- Internet Protocol Version 4, Src: 10.0.2.137, Dst: 10.0.2.10
- Internet Control Message Protocol
 - Type: 8 (Echo (ping) request)
 - Code: 0
 - Checksum: 0xcfdb [unverified] [in ICMP error packet]
 - [Checksum Status: Unverified]
 - Identifier (BE): 28523 (0x6f2b)
 - Identifier (LE): 11088 (0x2b50)
 - Sequence number (BE): 5 (0x0005)
 - Sequence number (LE): 1280 (0x0500)

The packet capture window also shows a hex dump of the captured data and a summary of the capture statistics: 162 packets displayed, 58 (35.8%) of the capture.

Q2) An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets: one subblock of 10 addresses, one subblock of 60 addresses, and one subblock of 120 addresses. Design the subblocks. Use the topology shown below.

Allocated no. of address: $2^{32}-24 = 256$

First address: 14.24.74.0/24; Last address: 14.24.74.255/24
Mask: 255.255.255.0

We should start with largest sub-blocks.

$N_1=120 \Rightarrow N_1=128 \Rightarrow n_1=32-\log_2 128 = 25$

First address: 14.24.74.0/25

Last address: 14.24.74.127/25 Mask: 255.255.255.128 (as last octet: 1000 0000)

$N_2=60 \Rightarrow N_2=64 \Rightarrow n_2=32-\log_2 64 = 26$

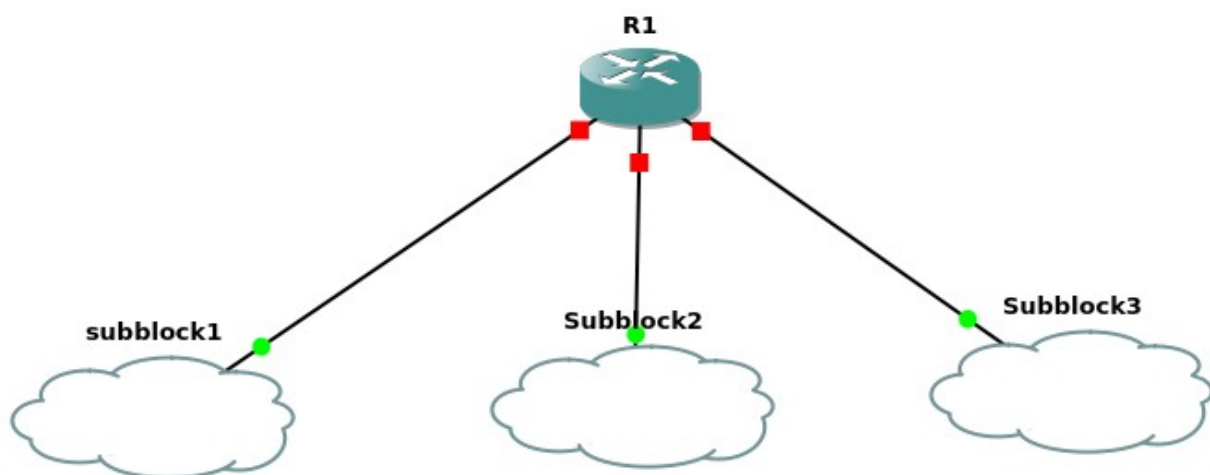
First address: 14.24.74.128/26

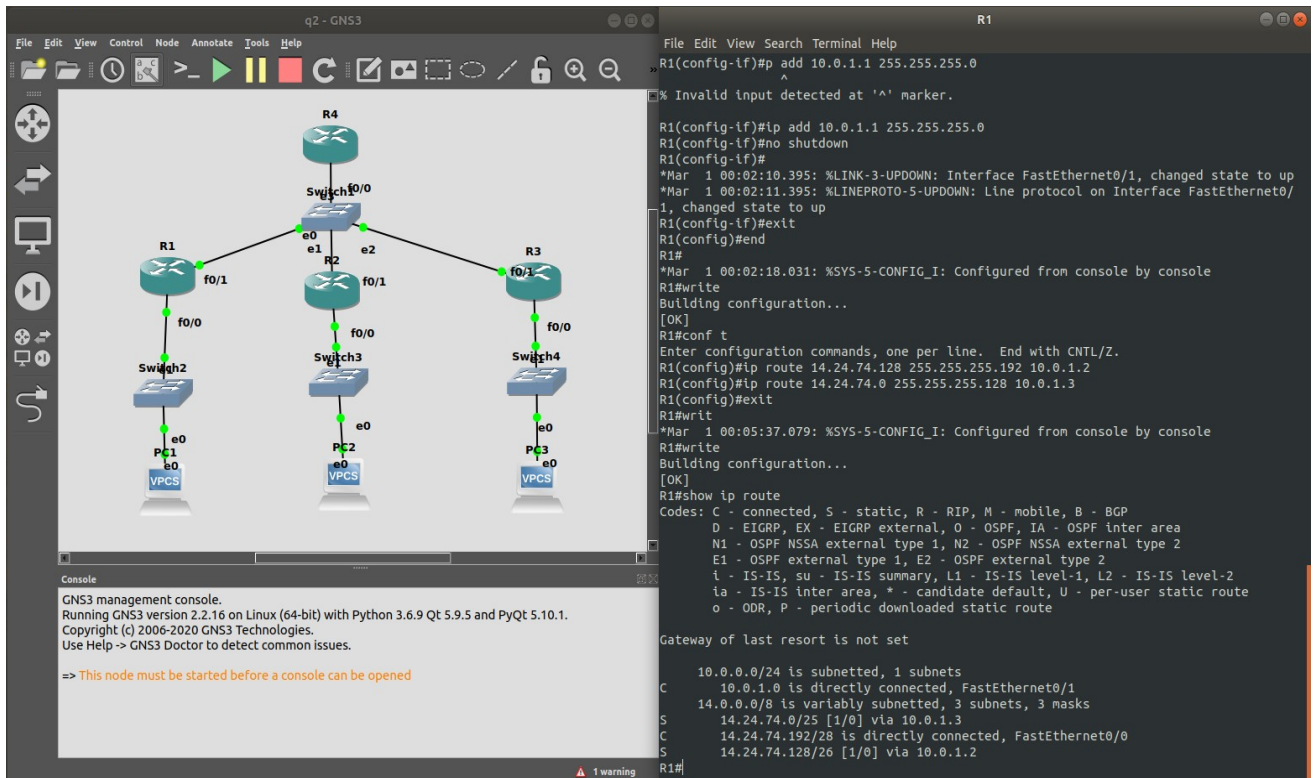
Last address: 14.24.74.191/26 Mask: 255.255.255.192 (as last octet: 1100 0000)

$N_3=10 \Rightarrow N_3=16 \Rightarrow n_3=32-\log_2 16 = 28$

First address: 14.24.74.192/28

Last address: 14.24.74.207/28 Mask: 255.255.255.240 (as last octet: 1111 0000)





Router configurations:

FOR ROUTER R1 :

```

R1#enable
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface f0/0
R1(config-if)#ip add 14.24.74.193 255.255.255.240
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 00:01:37.895: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 00:01:38.895: %LINEPROTO-5-UPDOWN: Line protocol on Interface
FastEthernet0/0, changed state to up
R1(config-if)#exit
R1(config)#interface f0/1
R1(config-if)#ip add 10.0.1.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 00:02:10.395: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar 1 00:02:11.395: %LINEPROTO-5-UPDOWN: Line protocol on Interface
FastEthernet0/1, changed state to up
R1(config-if)#exit
R1(config)#end

```

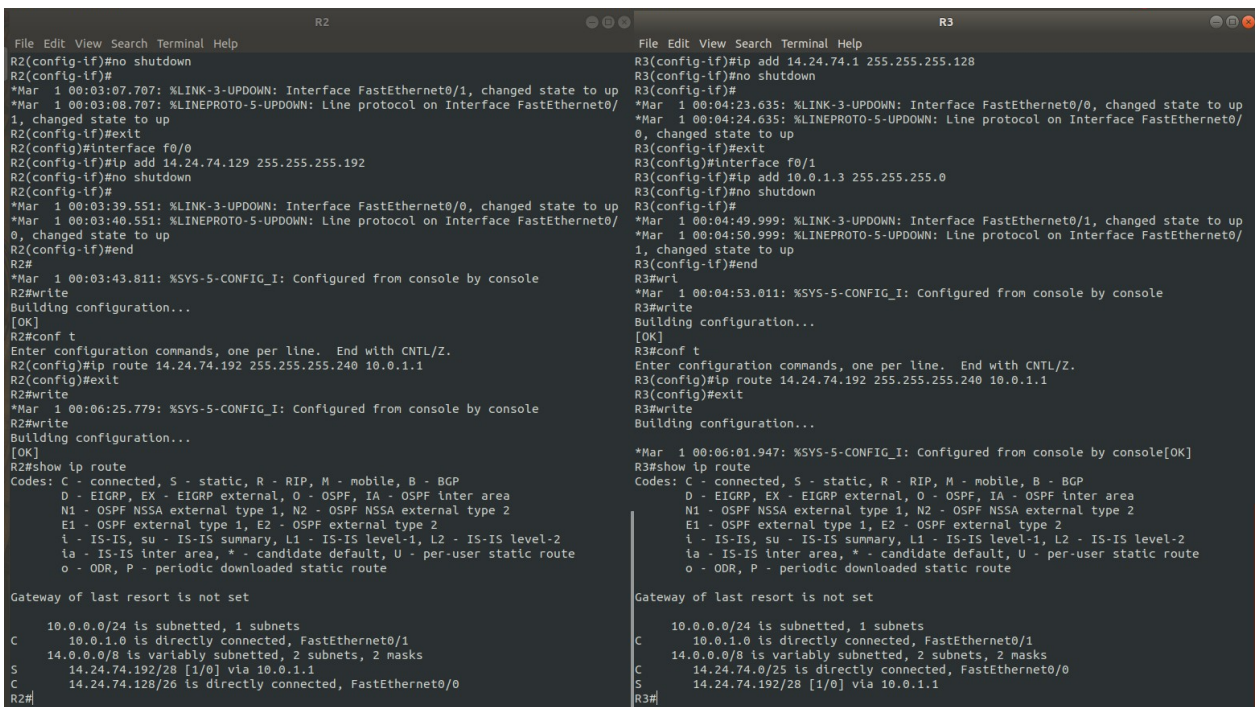


```
R1#
*Mar 1 00:02:18.031: %SYS-5-CONFIG_I: Configured from console by console
R1#write
Building configuration...
[OK]
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#ip route 14.24.74.128 255.255.255.192 10.0.1.2
R1(config)#ip route 14.24.74.0 255.255.255.128 10.0.1.3
R1(config)#exit
R1#writ
*Mar 1 00:05:37.079: %SYS-5-CONFIG_I: Configured from console by console
R1#write
```

FOR ROUTER R2:

```
R2#enable
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#interface f0/1
R2(config-if)#ip add 10.0.1.2 255.255.255.0
R2(config-if)#no shutdown
R2(config-if)#
*Mar 1 00:03:07.707: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar 1 00:03:08.707: %LINEPROTO-5-UPDOWN: Line protocol on Interface
FastEthernet0/1, changed state to up
R2(config-if)#exit
R2(config)#interface f0/0
R2(config-if)#ip add 14.24.74.129 255.255.255.192
R2(config-if)#no shutdown
R2(config-if)#
*Mar 1 00:03:39.551: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 00:03:40.551: %LINEPROTO-5-UPDOWN: Line protocol on Interface
FastEthernet0/0, changed state to up
R2(config-if)#end
R2#
*Mar 1 00:03:43.811: %SYS-5-CONFIG_I: Configured from console by console
R2#write
Building configuration...
[OK]
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip route 14.24.74.192 255.255.255.240 10.0.1.1
R2(config)#exit
R2#write
```

*Mar 1 00:06:25.779: %SYS-5-CONFIG_I: Configured from console by console
R2#write



The screenshot displays two terminal windows side-by-side, labeled R2 and R3. Both windows show the configuration of a Cisco router. The R2 terminal shows the configuration of interface FastEthernet0/1 with IP 14.24.74.129 and FastEthernet0/0 with IP 10.0.1.3. The R3 terminal shows the configuration of interface FastEthernet0/0 with IP 14.24.74.1 and FastEthernet0/1 with IP 10.0.1.3. Both routers are configured with OSPF and have their configurations saved. The R2 terminal also shows the configuration of interface FastEthernet0/1 with IP 14.24.74.129 and FastEthernet0/0 with IP 10.0.1.3. The R3 terminal also shows the configuration of interface FastEthernet0/0 with IP 14.24.74.1 and FastEthernet0/1 with IP 10.0.1.3. Both routers are configured with OSPF and have their configurations saved. The R2 terminal also shows the configuration of interface FastEthernet0/1 with IP 14.24.74.129 and FastEthernet0/0 with IP 10.0.1.3. The R3 terminal also shows the configuration of interface FastEthernet0/0 with IP 14.24.74.1 and FastEthernet0/1 with IP 10.0.1.3. Both routers are configured with OSPF and have their configurations saved.

FOR ROUTER R3:

```
R3#enable
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#interface f0/0
R3(config-if)#ip add 14.24.74.1 255.255.255.128
R3(config-if)#no shutdown
R3(config-if)#
*Mar 1 00:04:23.635: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 00:04:24.635: %LINEPROTO-5-UPDOWN: Line protocol on Interface
FastEthernet0/0, changed state to up
R3(config-if)#exit
R3(config)#interface f0/1
R3(config-if)#ip add 10.0.1.3 255.255.255.0
R3(config-if)#no shutdown
R3(config-if)#
*Mar 1 00:04:49.999: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar 1 00:04:50.999: %LINEPROTO-5-UPDOWN: Line protocol on Interface
FastEthernet0/1, changed state to up
R3(config-if)#end
R3#wri
*Mar 1 00:04:53.011: %SYS-5-CONFIG_I: Configured from console by console
R3#write
Building configuration...
```

[OK]

R3#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R3(config)#ip route 14.24.74.192 255.255.255.240 10.0.1.1

R3(config)#exit

R3#write

PC configurations and pinging from PC1 to PC2 and PC3

```
PC1
File Edit View Search Terminal Help
Connected to 127.0.0.1.
Escape character is '^J'.

Welcome to Virtual PC Simulator, version 0.6.1
Dedicated to Daling.
Build time: Apr  3 2018 13:45:00
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
All rights reserved.

VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC1> ip 14.24.74.194/28 14.24.74.193
Checking for duplicate address...
PC1 : 14.24.74.194 255.255.255.240 gateway 14.24.74.193

PC1> ping 14.24.74.130
14.24.74.130 icmp_seq=1 timeout
14.24.74.130 icmp_seq=2 timeout
84 bytes from 14.24.74.130 icmp_seq=3 ttl=62 time=26.349 ms
84 bytes from 14.24.74.130 icmp_seq=4 ttl=62 time=24.538 ms
84 bytes from 14.24.74.130 icmp_seq=5 ttl=62 time=24.803 ms

PC1> ping 14.24.74.2
14.24.74.2 icmp_seq=1 timeout
14.24.74.2 icmp_seq=2 timeout
84 bytes from 14.24.74.2 icmp_seq=3 ttl=62 time=38.691 ms
84 bytes from 14.24.74.2 icmp_seq=4 ttl=62 time=25.050 ms
84 bytes from 14.24.74.2 icmp_seq=5 ttl=62 time=25.202 ms

PC1> show arp
c4:01:1c:68:00:00 14.24.74.193 expires in 89 seconds

PC1> save arp
Saving startup configuration to arp.vpc
. done
PC1> |

PC2
File Edit View Search Terminal Help
Trying 127.0.0.1...
Connected to 127.0.0.1.
Escape character is '^J'.

Welcome to Virtual PC Simulator, version 0.6.1
Dedicated to Daling.
Build time: Apr  3 2018 13:45:00
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Press '?' to get help.

Executing the startup file

PC2> ip 14.24.74.130/26 14.24.74.129
Checking for duplicate address...
PC1 : 14.24.74.130 255.255.255.192 gateway 14.24.74.129

PC2> show arp
c4:02:1c:77:00:00 14.24.74.129 expires in 79 seconds

PC2> |
```

```
PC1
File Edit View Search Terminal Help
Connected to 127.0.0.1.
Escape character is '^J'.

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Build time: Apr  3 2018 13:45:00
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Executing the startup file

PC1> ip 14.24.74.194/28 14.24.74.193
Checking for duplicate address...
PC1 : 14.24.74.194 255.255.255.240 gateway 14.24.74.193

PC1> ping 14.24.74.130
14.24.74.130 icmp_seq=1 timeout
14.24.74.130 icmp_seq=2 timeout
84 bytes from 14.24.74.130 icmp_seq=3 ttl=62 time=26.349 ms
84 bytes from 14.24.74.130 icmp_seq=4 ttl=62 time=24.538 ms
84 bytes from 14.24.74.130 icmp_seq=5 ttl=62 time=24.803 ms

PC1> ping 14.24.74.2
14.24.74.2 icmp_seq=1 timeout
14.24.74.2 icmp_seq=2 timeout
84 bytes from 14.24.74.2 icmp_seq=3 ttl=62 time=38.691 ms
84 bytes from 14.24.74.2 icmp_seq=4 ttl=62 time=25.050 ms
84 bytes from 14.24.74.2 icmp_seq=5 ttl=62 time=25.202 ms

PC1> show arp
c4:01:1c:68:00:00 14.24.74.193 expires in 89 seconds

PC1> save arp
Saving startup configuration to arp.vpc
. done
PC1> |

PC3
File Edit View Search Terminal Help
Trying 127.0.0.1...
Connected to 127.0.0.1.
Escape character is '^J'.

Welcome to Virtual PC Simulator, version 0.6.1
Dedicated to Daling.
Build time: Apr  3 2018 13:45:00
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Press '?' to get help.

Executing the startup file

PC3> ip 14.24.74.2/25 14.24.74.1
Checking for duplicate address...
PC1 : 14.24.74.2 255.255.255.128 gateway 14.24.74.1

PC3> show arp
c4:03:1c:86:00:00 14.24.74.1 expires in 88 seconds

PC3> |
```