//Topology

//Connectivity Setup

R6

```
    / bytes transfered = 0
*Mar  1 00:00:06.543: %LINEPROTO-5-UPDOWN: Line protocol on Interface VoIP-Null0, changed stat
e to up
*Mar  1 00:00:06.547: %LINEPROTO-5-UPDOWN: Line protocol on Interface IPv6-mpls, changed state
 to up
*Mar  1 00:00:06.723: %SYS-5-CONFIG_I: Configured from memory by console
*Mar  1 00:00:07.099: %SYS-5-RESTART: System restarted --
Cisco IOS Software, 3700 Software (C3745-ADVIPSERVICESK9-M), Version 12.4(25d), RELEASE SOFTWA
RE (fc1)
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Compiled Wed 18-Aug-10 08:18 by prod_rel_team
*Mar  1 00:00:07.107: %SNMP-5-COLDSTART: SNMP agent on host R6 is undergoing a cold start
*Mar  1 00:00:07.131: %LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administrat
ively down
*Mar  1 00:00:07.131: %LINK-5-CHANGED: Interface FastEthernet0/0, changed state to administrat
ively down
*Mar  1 00:00:08.131: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
 state to down
*Mar  1 00:00:08.131: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
 state to down
R6#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R6(config)#int f0/0
R6(config-if)#ip addr 14.24.74.214 255.255.255.248
R6(config-if)#no shutdown
R6(config-if)#exit
R6(config)#
*Mar  1 00:09:07.595: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar  1 00:09:08.595: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
 state to up
R6(config)#int f0/1
R6(config-if)#ip addr 30.30.30.3 255.255.255.0
R6(config-if)#no shutdown
R6(config-if)#exit
R6(config)#
*Mar  1 00:09:30.351: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar  1 00:09:31.351: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
 state to up
R6(config)#ip route 20.20.20.0 255.255.255.0 30.30.30.1
R6(config)#ip route 10.10.10.0 255.255.255.0 30.30.30.1
R6(config)#ip route 14.24.74.0 255.255.255.128 30.30.30.1
R6(config)#ip route 14.24.74.128 255.255.255.192 30.30.30.1
R6(config)#ip route 14.24.74.192 255.255.255.240 30.30.30.2
R6(config)#_
```

R5

```
    / bytes transfered = 0
*Mar  1 00:00:06.735: %LINEPROTO-5-UPDOWN: Line protocol on Interface VoIP-Null0, changed stat
e to up
*Mar  1 00:00:06.739: %LINEPROTO-5-UPDOWN: Line protocol on Interface IPv6-mpls, changed state
 to up
*Mar  1 00:00:06.891: %SYS-5-CONFIG_I: Configured from memory by console
*Mar  1 00:00:07.179: %SYS-5-RESTART: System restarted --
Cisco IOS Software, 3700 Software (C3745-ADVIPSERVICESK9-M), Version 12.4(25d), RELEASE SOFTWA
RE (fc1)
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Compiled Wed 18-Aug-10 08:18 by prod_rel_team
*Mar  1 00:00:07.187: %SNMP-5-COLDSTART: SNMP agent on host R5 is undergoing a cold start
*Mar  1 00:00:07.211: %LINK-5-CHANGED: Interface FastEthernet0/0, changed state to administrat
ively down
*Mar  1 00:00:07.255: %LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administrat
ively down
*Mar  1 00:00:08.211: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
 state to down
*Mar  1 00:00:08.255: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
 state to down
R5#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R5(config)#int f0/0
R5(config-if)#ip addr 14.24.74.206 255.255.255.240
R5(config-if)#no shutdown
R5(config-if)#exit
R5(config)#
*Mar  1 00:07:00.379: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar  1 00:07:01.379: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
 state to up
R5(config)#int f0/1
R5(config-if)#ip addr 30.30.30.2 255.255.255.0
R5(config-if)#no shutdown
R5(config-if)#exit
R5(config)#
*Mar  1 00:07:27.159: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar  1 00:07:28.159: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
 state to up
R5(config)#ip route 20.20.20.0 255.255.255.0 30.30.30.1
R5(config)#ip route 10.10.10.0 255.255.255.0 30.30.30.1
R5(config)#ip route 14.24.74.0 255.255.255.128 30.30.30.1
R5(config)#ip route 14.24.74.128 255.255.255.192 30.30.30.1
R5(config)#ip route 14.24.74.208 255.255.255.248 30.30.30.3
R5(config)#
```
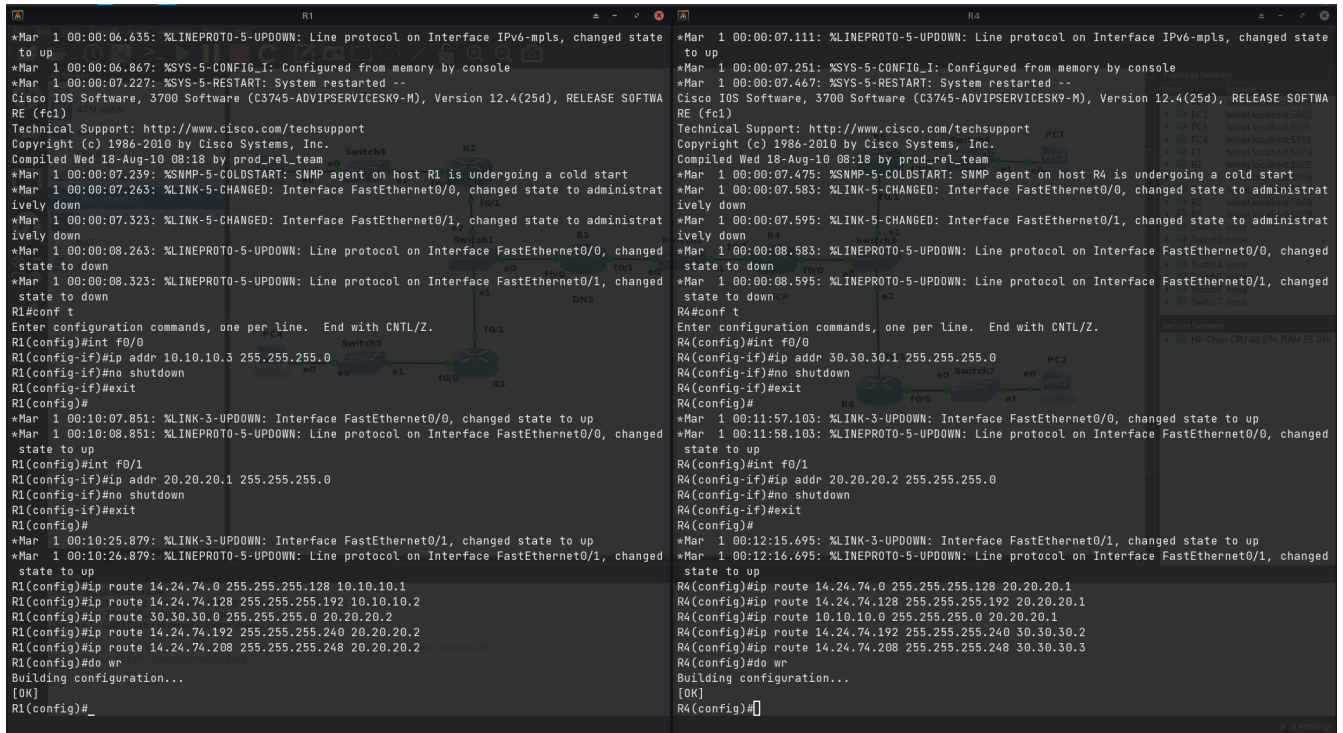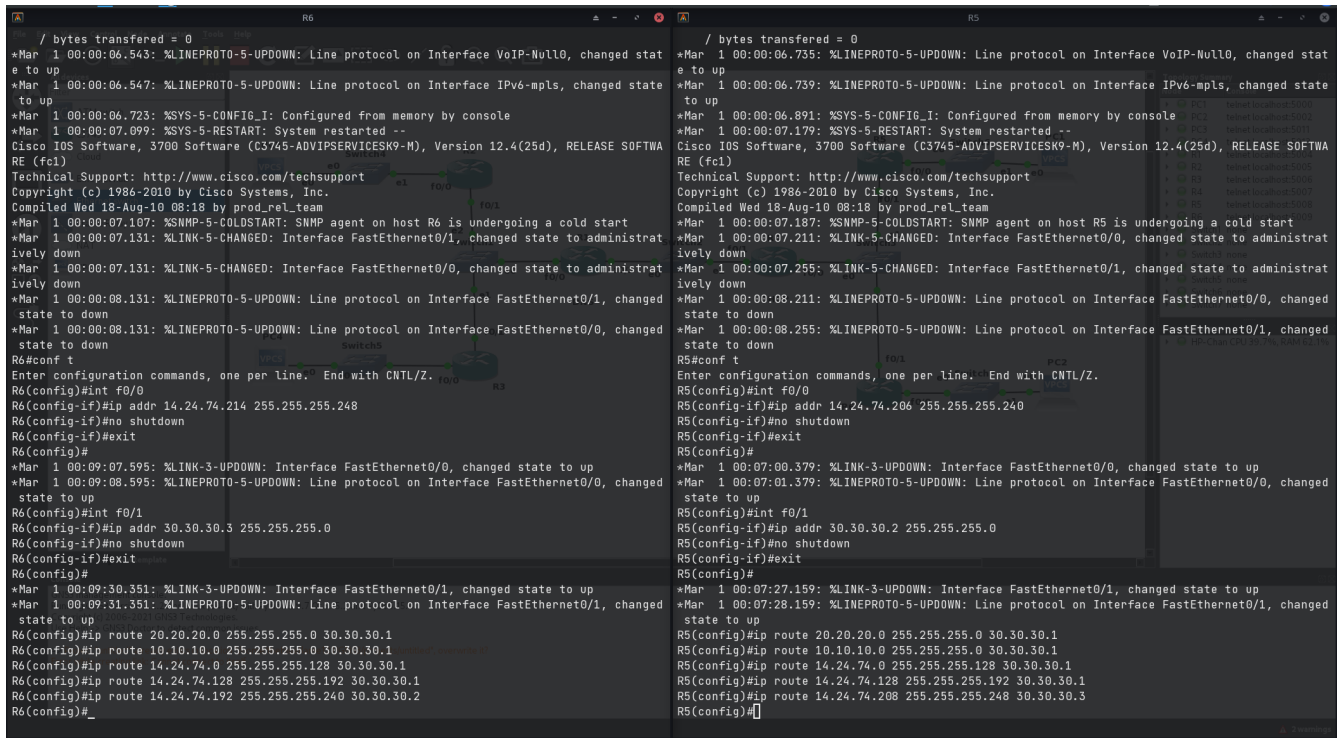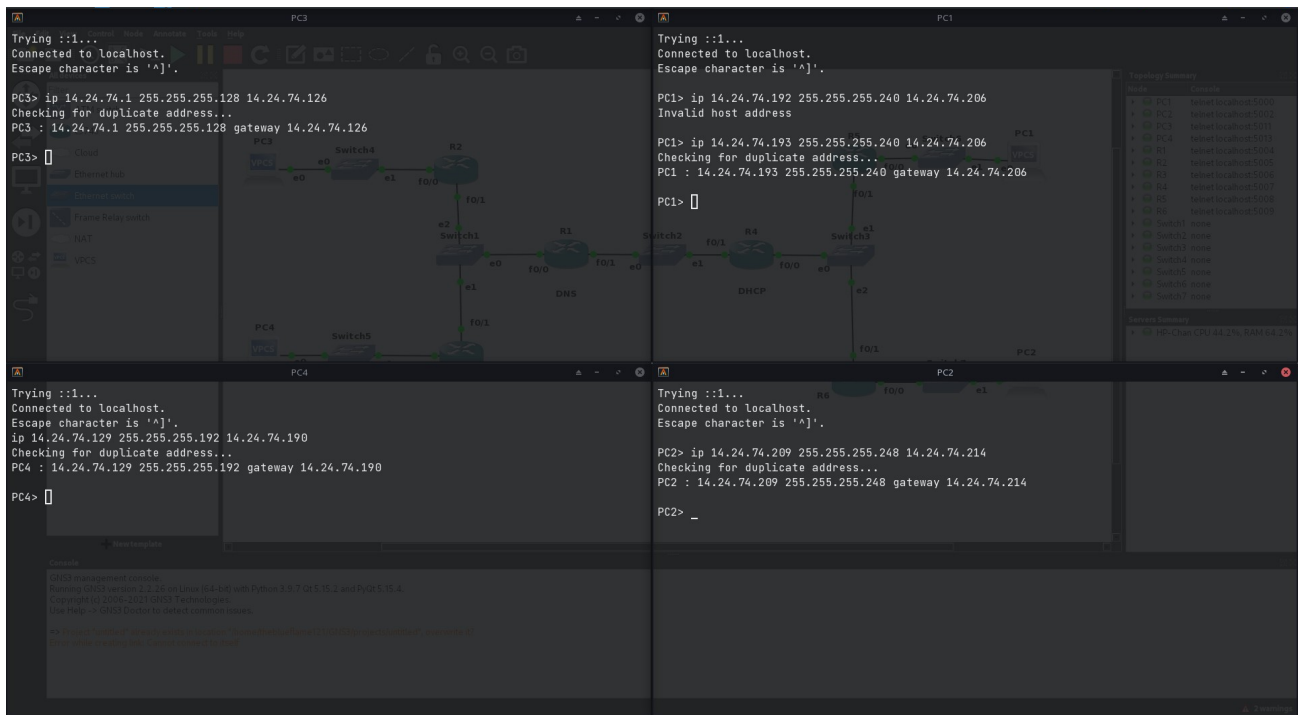
R1

```
*Mar  1 00:00:06.635: %LINEPROTO-5-UPDOWN: Line protocol on Interface IPv6-mpls, changed state
 to up
*Mar  1 00:00:06.867: %SYS-5-CONFIG_I: Configured from memory by console
*Mar  1 00:00:07.227: %SYS-5-RESTART: System restarted --
Cisco IOS Software, 3700 Software (C3745-ADVIPSERVICESK9-M), Version 12.4(25d), RELEASE SOFTWA
RE (fc1)
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Compiled Wed 18-Aug-10 08:18 by prod_rel_team
*Mar  1 00:00:07.239: %SNMP-5-COLDSTART: SNMP agent on host R1 is undergoing a cold start
*Mar  1 00:00:07.263: %LINK-5-CHANGED: Interface FastEthernet0/0, changed state to administrat
ively down
*Mar  1 00:00:07.323: %LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administrat
ively down
*Mar  1 00:00:08.263: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
 state to down
*Mar  1 00:00:08.323: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
 state to down
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int f0/0
R1(config-if)#ip addr 10.10.10.3 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#
*Mar  1 00:10:07.851: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar  1 00:10:08.851: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
 state to up
R1(config)#int f0/1
R1(config-if)#ip addr 20.20.20.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#
*Mar  1 00:10:25.879: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar  1 00:10:26.879: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
 state to up
R1(config)#ip route 14.24.74.0 255.255.255.128 10.10.10.1
R1(config)#ip route 14.24.74.128 255.255.255.192 10.10.10.2
R1(config)#ip route 30.30.30.0 255.255.255.0 20.20.20.2
R1(config)#ip route 14.24.74.192 255.255.255.240 20.20.20.2
R1(config)#ip route 14.24.74.208 255.255.255.248 20.20.20.2
R1(config)#do wr
Building configuration...
[OK]
R1(config)#_
```

R4

```
*Mar  1 00:00:07.111: %LINEPROTO-5-UPDOWN: Line protocol on Interface IPv6-mpls, changed state
 to up
*Mar  1 00:00:07.251: %SYS-5-CONFIG_I: Configured from memory by console
*Mar  1 00:00:07.467: %SYS-5-RESTART: System restarted --
Cisco IOS Software, 3700 Software (C3745-ADVIPSERVICESK9-M), Version 12.4(25d), RELEASE SOFTWA
RE (fc1)
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Compiled Wed 18-Aug-10 08:18 by prod_rel_team
*Mar  1 00:00:07.475: %SNMP-5-COLDSTART: SNMP agent on host R4 is undergoing a cold start
*Mar  1 00:00:07.583: %LINK-5-CHANGED: Interface FastEthernet0/0, changed state to administrat
ively down
*Mar  1 00:00:07.595: %LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administrat
ively down
*Mar  1 00:00:08.583: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
 state to down
*Mar  1 00:00:08.595: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
 state to down
R4#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R4(config)#int f0/0
R4(config-if)#ip addr 30.30.30.1 255.255.255.0
R4(config-if)#no shutdown
R4(config-if)#exit
R4(config)#
*Mar  1 00:11:57.103: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar  1 00:11:58.103: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
 state to up
R4(config)#int f0/1
R4(config-if)#ip addr 20.20.20.2 255.255.255.0
R4(config-if)#no shutdown
R4(config-if)#exit
R4(config)#
*Mar  1 00:12:15.695: %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar  1 00:12:16.695: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
 state to up
R4(config)#ip route 14.24.74.0 255.255.255.128 20.20.20.1
R4(config)#ip route 14.24.74.128 255.255.255.192 20.20.20.1
R4(config)#ip route 10.10.10.0 255.255.255.0 20.20.20.1
R4(config)#ip route 14.24.74.192 255.255.255.240 30.30.30.2
R4(config)#ip route 14.24.74.208 255.255.255.248 30.30.30.3
R4(config)#do wr
Building configuration...
[OK]
R4(config)#
```

//Pinging Everything from PC3 to ensure connectivity
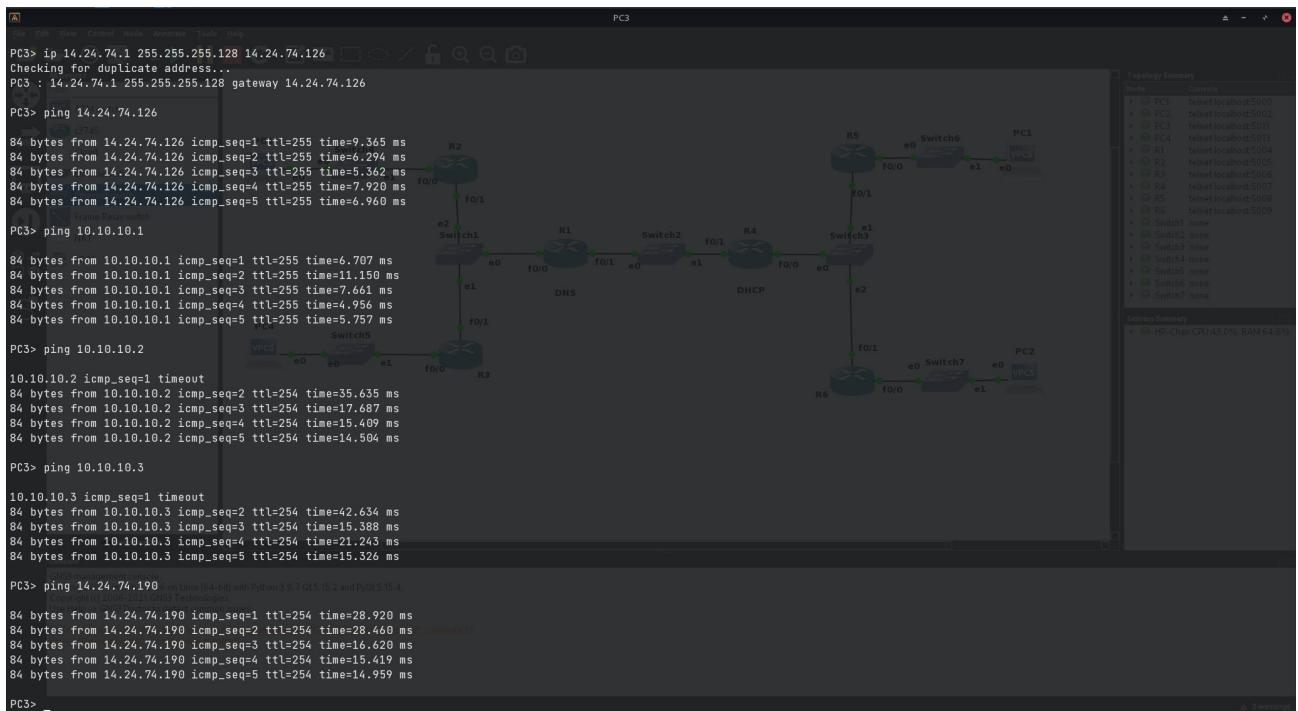
```
84 bytes from 14.24.74.190 icmp_seq=2 ttl=254 time=28.460 ms
84 bytes from 14.24.74.190 icmp_seq=3 ttl=254 time=16.620 ms
84 bytes from 14.24.74.190 icmp_seq=4 ttl=254 time=15.419 ms
84 bytes from 14.24.74.190 icmp_seq=5 ttl=254 time=14.959 ms

PC3> ping 14.24.74.129

14.24.74.129 icmp_seq=1 timeout
84 bytes from 14.24.74.129 icmp_seq=2 ttl=62 time=39.061 ms
84 bytes from 14.24.74.129 icmp_seq=3 ttl=62 time=28.124 ms
84 bytes from 14.24.74.129 icmp_seq=4 ttl=62 time=25.862 ms
84 bytes from 14.24.74.129 icmp_seq=5 ttl=62 time=26.969 ms

PC3> ping 20.20.20.1

84 bytes from 20.20.20.1 icmp_seq=1 ttl=254 time=31.567 ms
84 bytes from 20.20.20.1 icmp_seq=2 ttl=254 time=16.365 ms
84 bytes from 20.20.20.1 icmp_seq=3 ttl=254 time=16.835 ms
84 bytes from 20.20.20.1 icmp_seq=4 ttl=254 time=26.130 ms
84 bytes from 20.20.20.1 icmp_seq=5 ttl=254 time=24.985 ms

PC3> ping 20.20.20.2

20.20.20.2 icmp_seq=1 timeout
84 bytes from 20.20.20.2 icmp_seq=2 ttl=253 time=55.676 ms
84 bytes from 20.20.20.2 icmp_seq=3 ttl=253 time=24.863 ms
84 bytes from 20.20.20.2 icmp_seq=4 ttl=253 time=28.321 ms
84 bytes from 20.20.20.2 icmp_seq=5 ttl=253 time=29.611 ms

PC3> ping 30.30.30.1

84 bytes from 30.30.30.1 icmp_seq=1 ttl=253 time=39.991 ms
84 bytes from 30.30.30.1 icmp_seq=2 ttl=253 time=33.837 ms
84 bytes from 30.30.30.1 icmp_seq=3 ttl=253 time=35.019 ms
84 bytes from 30.30.30.1 icmp_seq=4 ttl=253 time=28.066 ms
84 bytes from 30.30.30.1 icmp_seq=5 ttl=253 time=25.526 ms

PC3> ping 30.30.30.2

30.30.30.2 icmp_seq=1 timeout
84 bytes from 30.30.30.2 icmp_seq=2 ttl=252 time=84.898 ms
84 bytes from 30.30.30.2 icmp_seq=3 ttl=252 time=57.925 ms
84 bytes from 30.30.30.2 icmp_seq=4 ttl=252 time=38.860 ms
84 bytes from 30.30.30.2 icmp_seq=5 ttl=252 time=44.005 ms

PC3> _
```
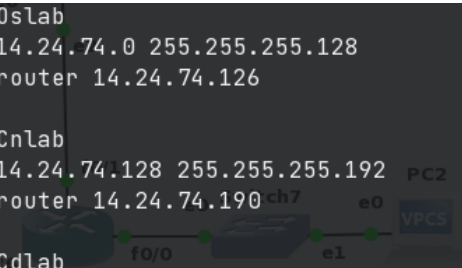
```
84 bytes from 30.30.30.2 icmp_seq=2 ttl=252 time=84.898 ms
84 bytes from 30.30.30.2 icmp_seq=3 ttl=252 time=57.925 ms
84 bytes from 30.30.30.2 icmp_seq=4 ttl=252 time=38.860 ms
84 bytes from 30.30.30.2 icmp_seq=5 ttl=252 time=44.005 ms

PC3> ping 30.30.30.3

30.30.30.3 icmp_seq=1 timeout
84 bytes from 30.30.30.3 icmp_seq=2 ttl=252 time=64.378 ms
84 bytes from 30.30.30.3 icmp_seq=3 ttl=252 time=46.122 ms
84 bytes from 30.30.30.3 icmp_seq=4 ttl=252 time=38.400 ms
84 bytes from 30.30.30.3 icmp_seq=5 ttl=252 time=53.774 ms

PC3> ping 14.24.74.206

84 bytes from 14.24.74.206 icmp_seq=1 ttl=252 time=33.628 ms
84 bytes from 14.24.74.206 icmp_seq=2 ttl=252 time=47.549 ms
84 bytes from 14.24.74.206 icmp_seq=3 ttl=252 time=46.994 ms
84 bytes from 14.24.74.206 icmp_seq=4 ttl=252 time=48.024 ms
84 bytes from 14.24.74.206 icmp_seq=5 ttl=252 time=34.726 ms

PC3> ping 14.24.74.193

14.24.74.193 icmp_seq=1 timeout
84 bytes from 14.24.74.193 icmp_seq=2 ttl=60 time=62.416 ms
84 bytes from 14.24.74.193 icmp_seq=3 ttl=60 time=46.145 ms
84 bytes from 14.24.74.193 icmp_seq=4 ttl=60 time=67.461 ms
84 bytes from 14.24.74.193 icmp_seq=5 ttl=60 time=69.464 ms

PC3> ping 14.24.74.214

84 bytes from 14.24.74.214 icmp_seq=1 ttl=252 time=50.643 ms
84 bytes from 14.24.74.214 icmp_seq=2 ttl=252 time=44.802 ms
84 bytes from 14.24.74.214 icmp_seq=3 ttl=252 time=33.798 ms
84 bytes from 14.24.74.214 icmp_seq=4 ttl=252 time=48.912 ms
84 bytes from 14.24.74.214 icmp_seq=5 ttl=252 time=35.399 ms

PC3> ping 14.24.74.209

14.24.74.209 icmp_seq=1 timeout
84 bytes from 14.24.74.209 icmp_seq=2 ttl=60 time=49.511 ms
84 bytes from 14.24.74.209 icmp_seq=3 ttl=60 time=45.152 ms
84 bytes from 14.24.74.209 icmp_seq=4 ttl=60 time=44.258 ms
84 bytes from 14.24.74.209 icmp_seq=5 ttl=60 time=44.160 ms

PC3> _
```

//DHCP Setup
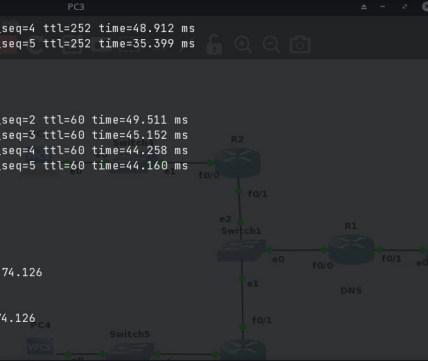
```
R4(config)#ip dhcp pool Oslab
R4(dhcp-config)#network 14.24.74.0 255.255.255.128
R4(dhcp-config)#default-router 14.24.74.126
R4(dhcp-config)#exit
R4(config)#ip dhcp pool Cnlab
R4(dhcp-config)#network 14.24.74.128 255.255.255.192
R4(dhcp-config)#default-router 14.24.74.190
R4(dhcp-config)#exit
R4(config)#ip dhcp pool Cdlab
R4(dhcp-config)#network 14.24.74.192 255.255.255.240
R4(dhcp-config)#default-router 14.24.74.206
R4(dhcp-config)#exit
R4(config)#ip dhcp pool Dslab
R4(dhcp-config)#network 14.24.74.208 255.255.255.248
R4(dhcp-config)#default-router 14.24.74.214
R4(dhcp-config)#exit
R4(config)#
*Mar  1 00:50:29.247: %DHCPD-4-PING_CONFLICT: DHCP address conflict:  server pinged 14.24.74.1
.
R4(config)#
*Mar  1 00:52:14.991: %DHCPD-4-PING_CONFLICT: DHCP address conflict:  server pinged 14.24.74.1
29.
R4(config)#
*Mar  1 00:52:24.851: %DHCPD-4-PING_CONFLICT: DHCP address conflict:  server pinged 14.24.74.1
93.
R4(config)#
*Mar  1 00:52:34.243: %DHCPD-4-PING_CONFLICT: DHCP address conflict:  server pinged 14.24.74.2
09.
R4(config)#_
```

//Getting new ips via DHCP

//Setting Up DNS server

```
R1(config)#ip dns server
R1(config)#ip host oslab.com 14.24.74.2
R1(config)#ip host cnlab.com 14.24.74.130
R1(config)#ip host cdlab.com 14.24.74.194
R1(config)#ip host dclab.com 14.24.74.210
R1(config)#_
```

//Pinging using DNS