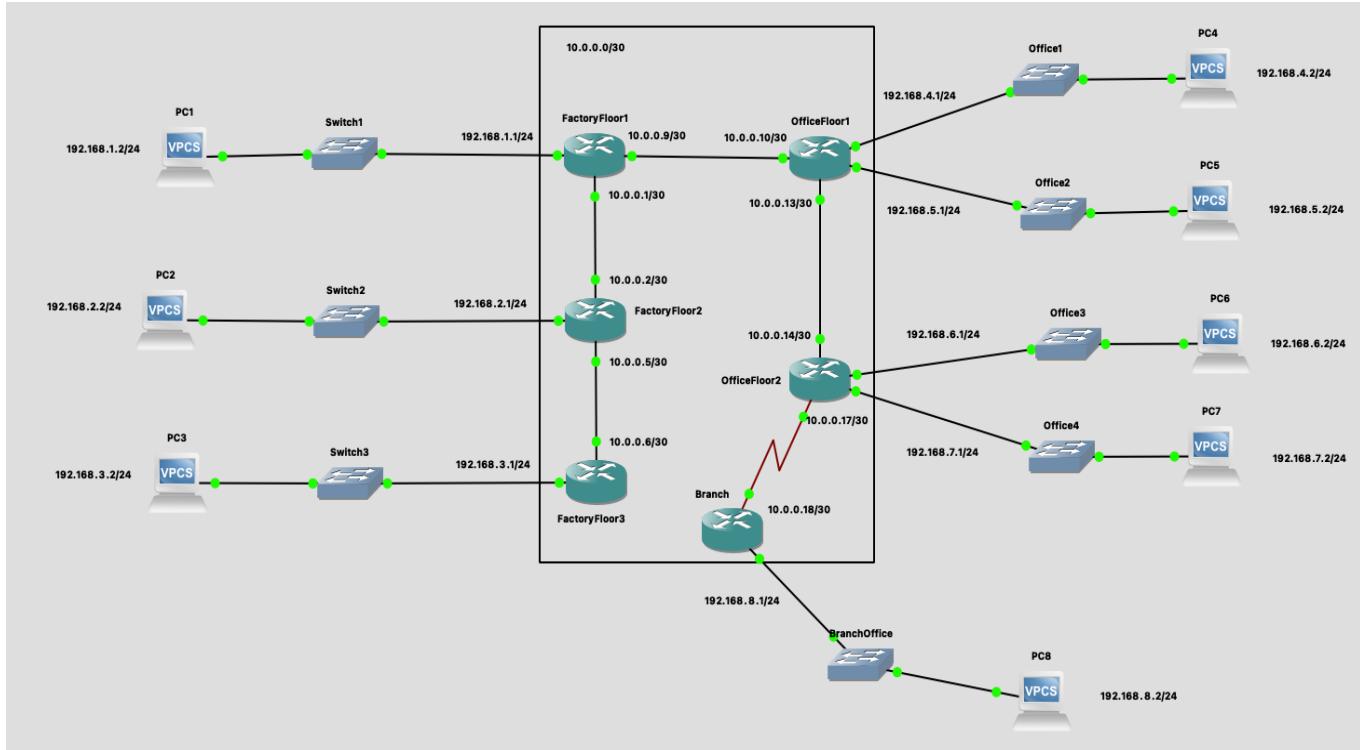


CENG422 PROJECT

Berkay Aydin 240201023 Computer Engineering



In this network project I used 6 routers, CISCO 3640, in total as shown in the diagram. 3 for factory 2 for office and 1 for branch office. Since the factory building and office building are next to each other I have connected first floor routers of both with fast ethernet ports. Expect the serial link between OfficeFloor2 and Branch all the ports are fast ethernet in this project. Every pc has an IP address according to which switch it is connected to on the router. These IP addresses were given as shown in the lecture. For example, PC1's IP address is 192.168.1.2 because it is connected to FactoryFloor1's fast ethernet port 1/0, connected to the switch in the diagram, which has IP address "192.168.1.1". This logic of naming is continued for every PC in the network. PC2 on 2nd Factory Floor has the IP address 192.168.2.2 and PC3 has 192.168.3.2 on 3rd Floor of Factory. For the office building there are 2 floor each have their own router and every floor has 2 offices. I assigned separate subnets to offices on the same floor. Office1 and Office2 are both on the first floor of office building. OfficeFloor1 router's port which connected to Office1 has IP address 192.168.4.1 and 192.168.5.1 for the port of OfficeFloor1 which is connected to Office2. Same also applies to Office3 and Office4 192.168.6.2 and 192.168.7.2 on 2nd floor of Office building. In Branch Office PC8 has the IP address 192.168.8.2 and similar configuration is applied for the port of the Branch router which

connects to switch. As mask, 255.255.255.0 is used for all the address in the form “192.168.0.0”.

Routers in the network are connected to each other and these ports have IP addresses in format 10.0.0.0, goes on as 10.0.0.1, 10.0.0.2 etc., and 255.255.255.252 mask used in all of them. Between OfficeFloor2 and Branch there is a serial link which connects these two routers and they use PPP to “talk” to each other. After giving the IP addresses to the ports for the corresponding interfaces input the commands in this order:

1- encapsulation ppp

2- ppp authentication chap 1234(1234 stands for password)

Now on router OfficeFloor2 we have to create a user id for router Branch and vice versa. This can be done by config in terminal with the command:

username <RouterName> password <Password>

(In project username is the same as router names and password is 1234)

For these computers and routers to see everyone else I used RIP. (Routing Information Protocol: a distance routing protocol) Alternatively EIGRP could have been used as well for this purpose but for me RIP seemed easier to use and had some issues trying to use EIGRP. (EIGRP is a CISCO device exclusive routing protocol) Example of configuration of RIP in this project shown for FactoryFloor1 router after config terminal command:

1-router rip

2-network 10.0.0.0

3-network 192.168.1.0

4- no auto-summary

3rd line is different in every router since different floors and offices have different IP subnets. For office routers there will be 3 network commands since they have 2 office subnets connected to them. (for OfficeFloor1 router network 10.0.0.0, network 192.168.4.0, network 192.168.5.0) “no auto-summary” command is used because it can be problematic while using discontiguous networks and therefore it is usually turned off.

```

FactoryFloor1#
FactoryFloor1#sh 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 route
      o - ODR, P - periodic downloaded static route

[Gateway of last resort is not set

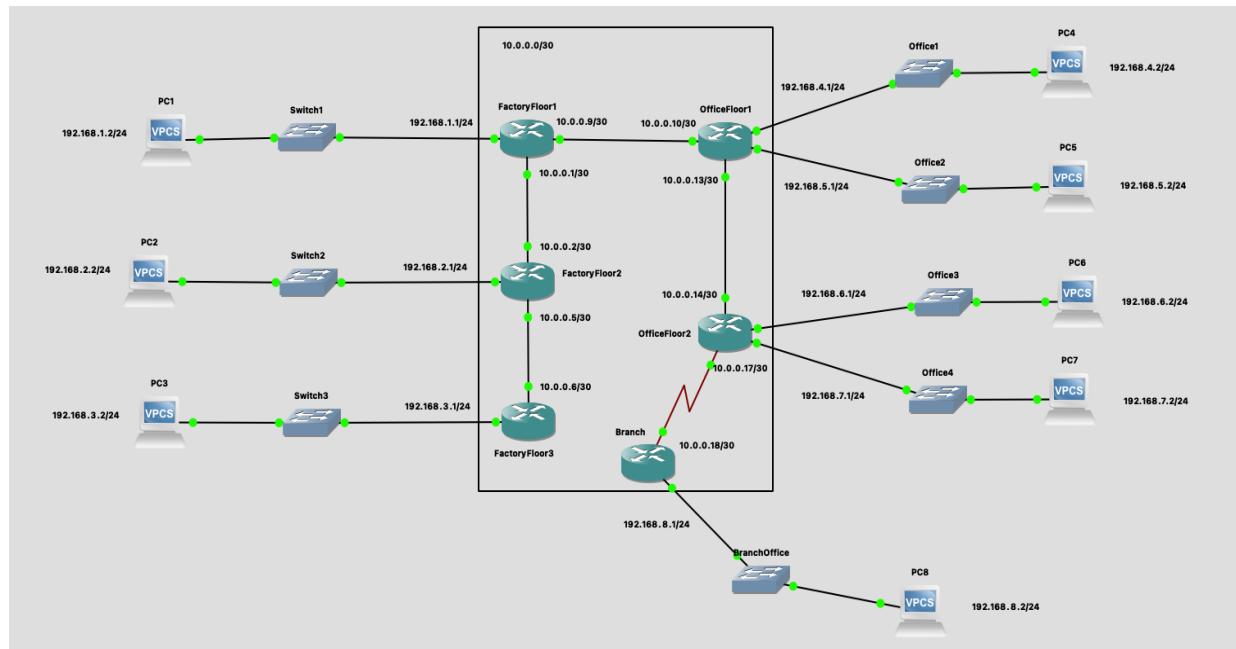
R    192.168.8.0/24 [120/3] via 10.0.0.10, 00:00:13, FastEthernet2/0
[R  192.168.4.0/24 [120/1] via 10.0.0.10, 00:00:13, FastEthernet2/0
R  192.168.5.0/24 [120/1] via 10.0.0.10, 00:00:13, FastEthernet2/0
  10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C    10.0.0.8/30 is directly connected, FastEthernet2/0
R    10.0.0.12/30 [120/1] via 10.0.0.10, 00:00:13, FastEthernet2/0
C    10.0.0.0/30 is directly connected, FastEthernet0/0
R    10.0.0.4/30 [120/1] via 10.0.0.2, 00:00:22, FastEthernet0/0
R    10.0.0.18/32 [120/2] via 10.0.0.10, 00:00:15, FastEthernet2/0
R    10.0.0.16/30 [120/2] via 10.0.0.10, 00:00:15, FastEthernet2/0
R    192.168.6.0/24 [120/2] via 10.0.0.10, 00:00:15, FastEthernet2/0
R    192.168.7.0/24 [120/2] via 10.0.0.10, 00:00:15, FastEthernet2/0
C    192.168.1.0/24 is directly connected, FastEthernet1/0
R    192.168.2.0/24 [120/1] via 10.0.0.2, 00:00:28, FastEthernet0/0
R    192.168.3.0/24 [120/2] via 10.0.0.2, 00:00:28, FastEthernet0/0
FactoryFloor1#]

```

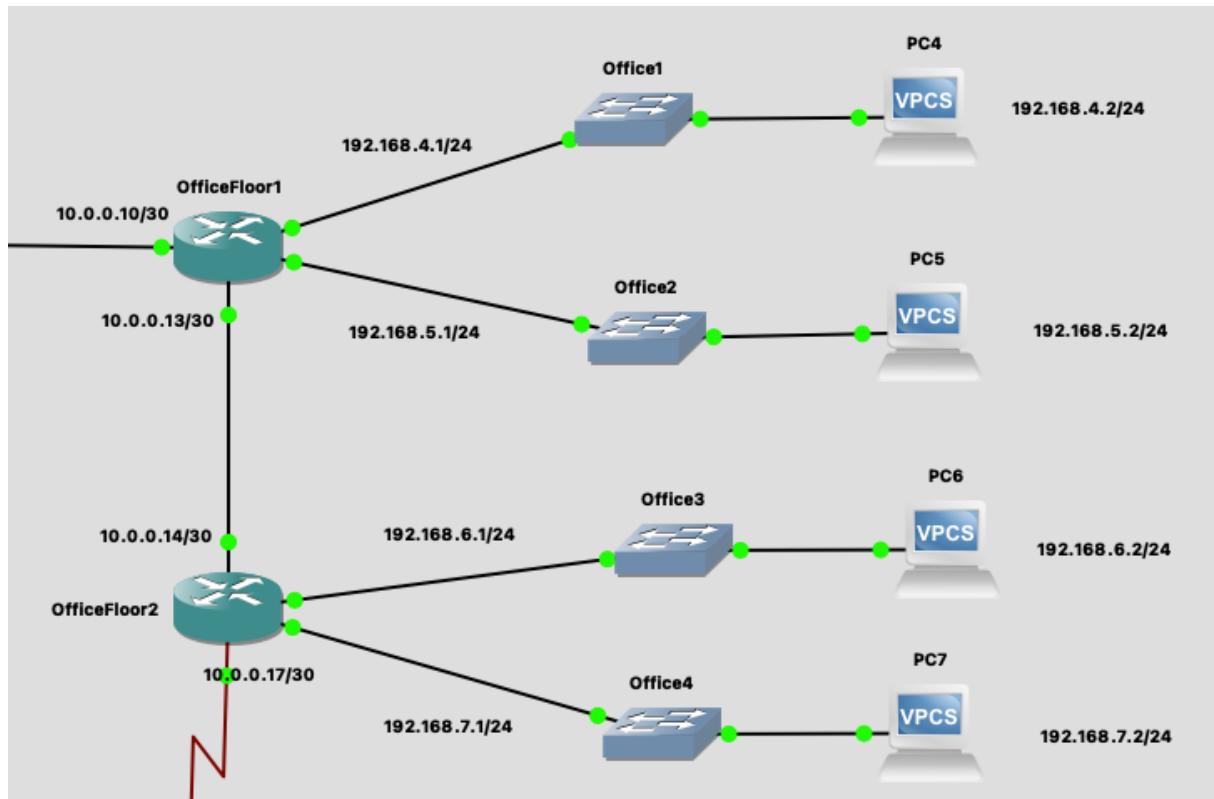
This screenshot is from FactoryFloor1 router when show IP route command is executed. As you can see this router can see all the routers and pcs in the network.

Here you can see the network building by building:

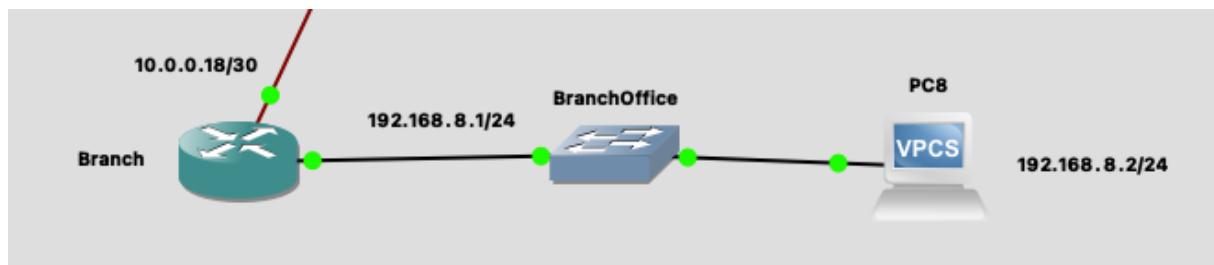
Factory:



Office:



Branch Office:



Verification that each section of the network can “see” all other sections is in the next pages:

For PC1:

```
PC1>
PC1> ping 192.168.2.2

84 bytes from 192.168.2.2 icmp_seq=1 ttl=62 time=95.760 ms
84 bytes from 192.168.2.2 icmp_seq=2 ttl=62 time=35.893 ms
84 bytes from 192.168.2.2 icmp_seq=3 ttl=62 time=26.272 ms
84 bytes from 192.168.2.2 icmp_seq=4 ttl=62 time=34.475 ms
84 bytes from 192.168.2.2 icmp_seq=5 ttl=62 time=26.569 ms

PC1> ping 192.168.3.2

84 bytes from 192.168.3.2 icmp_seq=1 ttl=61 time=108.984 ms
84 bytes from 192.168.3.2 icmp_seq=2 ttl=61 time=44.591 ms
84 bytes from 192.168.3.2 icmp_seq=3 ttl=61 time=38.217 ms
84 bytes from 192.168.3.2 icmp_seq=4 ttl=61 time=50.553 ms
84 bytes from 192.168.3.2 icmp_seq=5 ttl=61 time=46.714 ms

PC1> ping 192.168.4.2

84 bytes from 192.168.4.2 icmp_seq=1 ttl=62 time=79.906 ms
84 bytes from 192.168.4.2 icmp_seq=2 ttl=62 time=30.749 ms
84 bytes from 192.168.4.2 icmp_seq=3 ttl=62 time=37.013 ms
84 bytes from 192.168.4.2 icmp_seq=4 ttl=62 time=31.115 ms
84 bytes from 192.168.4.2 icmp_seq=5 ttl=62 time=30.872 ms

PC1> ping 192.168.5.2

84 bytes from 192.168.5.2 icmp_seq=1 ttl=62 time=42.812 ms
84 bytes from 192.168.5.2 icmp_seq=2 ttl=62 time=28.329 ms
84 bytes from 192.168.5.2 icmp_seq=3 ttl=62 time=26.486 ms
84 bytes from 192.168.5.2 icmp_seq=4 ttl=62 time=36.191 ms
84 bytes from 192.168.5.2 icmp_seq=5 ttl=62 time=25.440 ms

PC1> ping 192.168.6.2

84 bytes from 192.168.6.2 icmp_seq=1 ttl=61 time=51.332 ms
84 bytes from 192.168.6.2 icmp_seq=2 ttl=61 time=43.668 ms
84 bytes from 192.168.6.2 icmp_seq=3 ttl=61 time=49.622 ms
84 bytes from 192.168.6.2 icmp_seq=4 ttl=61 time=42.309 ms
84 bytes from 192.168.6.2 icmp_seq=5 ttl=61 time=38.680 ms

PC1> ping 192.168.7.2

84 bytes from 192.168.7.2 icmp_seq=1 ttl=61 time=60.403 ms
84 bytes from 192.168.7.2 icmp_seq=2 ttl=61 time=37.577 ms
84 bytes from 192.168.7.2 icmp_seq=3 ttl=61 time=62.227 ms
84 bytes from 192.168.7.2 icmp_seq=4 ttl=61 time=64.295 ms
84 bytes from 192.168.7.2 icmp_seq=5 ttl=61 time=42.866 ms

PC1> ping 192.168.8.2

84 bytes from 192.168.8.2 icmp_seq=1 ttl=60 time=67.139 ms
84 bytes from 192.168.8.2 icmp_seq=2 ttl=60 time=51.322 ms
84 bytes from 192.168.8.2 icmp_seq=3 ttl=60 time=52.082 ms
84 bytes from 192.168.8.2 icmp_seq=4 ttl=60 time=54.016 ms
84 bytes from 192.168.8.2 icmp_seq=5 ttl=60 time=51.575 ms

PC1> █
```

For PC2:

```
[PC2> ping 192.168.1.2
[84 bytes from 192.168.1.2 icmp_seq=1 ttl=62 time=48.214 ms
84 bytes from 192.168.1.2 icmp_seq=2 ttl=62 time=37.722 ms
84 bytes from 192.168.1.2 icmp_seq=3 ttl=62 time=27.490 ms
84 bytes from 192.168.1.2 icmp_seq=4 ttl=62 time=37.609 ms
84 bytes from 192.168.1.2 icmp_seq=5 ttl=62 time=26.361 ms

PC2> ping 192.168.3.2
[84 bytes from 192.168.3.2 icmp_seq=1 ttl=62 time=46.855 ms
84 bytes from 192.168.3.2 icmp_seq=2 ttl=62 time=30.909 ms
84 bytes from 192.168.3.2 icmp_seq=3 ttl=62 time=44.579 ms
84 bytes from 192.168.3.2 icmp_seq=4 ttl=62 time=31.125 ms
84 bytes from 192.168.3.2 icmp_seq=5 ttl=62 time=27.088 ms

PC2> ping 192.168.4.2
[84 bytes from 192.168.4.2 icmp_seq=1 ttl=61 time=61.576 ms
84 bytes from 192.168.4.2 icmp_seq=2 ttl=61 time=43.427 ms
84 bytes from 192.168.4.2 icmp_seq=3 ttl=61 time=42.064 ms
84 bytes from 192.168.4.2 icmp_seq=4 ttl=61 time=38.851 ms
84 bytes from 192.168.4.2 icmp_seq=5 ttl=61 time=56.219 ms

PC2> ping 192.168.5.2
[84 bytes from 192.168.5.2 icmp_seq=1 ttl=61 time=59.377 ms
84 bytes from 192.168.5.2 icmp_seq=2 ttl=61 time=48.185 ms
84 bytes from 192.168.5.2 icmp_seq=3 ttl=61 time=40.409 ms
84 bytes from 192.168.5.2 icmp_seq=4 ttl=61 time=44.439 ms
84 bytes from 192.168.5.2 icmp_seq=5 ttl=61 time=38.999 ms

PC2> ping 192.168.6.2
[84 bytes from 192.168.6.2 icmp_seq=1 ttl=60 time=79.312 ms
84 bytes from 192.168.6.2 icmp_seq=2 ttl=60 time=61.717 ms
84 bytes from 192.168.6.2 icmp_seq=3 ttl=60 time=55.521 ms
84 bytes from 192.168.6.2 icmp_seq=4 ttl=60 time=52.352 ms
84 bytes from 192.168.6.2 icmp_seq=5 ttl=60 time=63.045 ms

PC2> ping 192.168.7.2
[84 bytes from 192.168.7.2 icmp_seq=1 ttl=60 time=63.238 ms
84 bytes from 192.168.7.2 icmp_seq=2 ttl=60 time=51.705 ms
84 bytes from 192.168.7.2 icmp_seq=3 ttl=60 time=58.583 ms
84 bytes from 192.168.7.2 icmp_seq=4 ttl=60 time=71.598 ms
84 bytes from 192.168.7.2 icmp_seq=5 ttl=60 time=59.666 ms

PC2> ping 192.168.8.2
[84 bytes from 192.168.8.2 icmp_seq=1 ttl=59 time=81.416 ms
84 bytes from 192.168.8.2 icmp_seq=2 ttl=59 time=68.522 ms
84 bytes from 192.168.8.2 icmp_seq=3 ttl=59 time=96.406 ms
84 bytes from 192.168.8.2 icmp_seq=4 ttl=59 time=64.043 ms
84 bytes from 192.168.8.2 icmp_seq=5 ttl=59 time=85.254 ms

PC2> █
```

PC3:

```
PC3>
[PC3> ping 192.168.1.2
[84 bytes from 192.168.1.2 icmp_seq=1 ttl=61 time=72.784 ms
84 bytes from 192.168.1.2 icmp_seq=2 ttl=61 time=43.775 ms
84 bytes from 192.168.1.2 icmp_seq=3 ttl=61 time=59.509 ms
84 bytes from 192.168.1.2 icmp_seq=4 ttl=61 time=48.185 ms
84 bytes from 192.168.1.2 icmp_seq=5 ttl=61 time=62.741 ms

PC3> ping 192.168.2.2
[84 bytes from 192.168.2.2 icmp_seq=1 ttl=62 time=38.031 ms
84 bytes from 192.168.2.2 icmp_seq=2 ttl=62 time=31.907 ms
84 bytes from 192.168.2.2 icmp_seq=3 ttl=62 time=25.673 ms
84 bytes from 192.168.2.2 icmp_seq=4 ttl=62 time=31.394 ms
84 bytes from 192.168.2.2 icmp_seq=5 ttl=62 time=30.664 ms

PC3> ping 192.168.4.2
[84 bytes from 192.168.4.2 icmp_seq=1 ttl=60 time=80.126 ms
84 bytes from 192.168.4.2 icmp_seq=2 ttl=60 time=52.525 ms
84 bytes from 192.168.4.2 icmp_seq=3 ttl=60 time=73.599 ms
84 bytes from 192.168.4.2 icmp_seq=4 ttl=60 time=50.294 ms
84 bytes from 192.168.4.2 icmp_seq=5 ttl=60 time=49.864 ms

PC3> ping 192.168.5.2
[84 bytes from 192.168.5.2 icmp_seq=1 ttl=60 time=64.120 ms
84 bytes from 192.168.5.2 icmp_seq=2 ttl=60 time=69.600 ms
84 bytes from 192.168.5.2 icmp_seq=3 ttl=60 time=54.190 ms
84 bytes from 192.168.5.2 icmp_seq=4 ttl=60 time=71.638 ms
84 bytes from 192.168.5.2 icmp_seq=5 ttl=60 time=51.831 ms

PC3> ping 192.168.6.2
[84 bytes from 192.168.6.2 icmp_seq=1 ttl=59 time=78.094 ms
84 bytes from 192.168.6.2 icmp_seq=2 ttl=59 time=71.932 ms
84 bytes from 192.168.6.2 icmp_seq=3 ttl=59 time=67.666 ms
84 bytes from 192.168.6.2 icmp_seq=4 ttl=59 time=66.876 ms
84 bytes from 192.168.6.2 icmp_seq=5 ttl=59 time=73.053 ms

PC3> ping 192.168.7.2
[84 bytes from 192.168.7.2 icmp_seq=1 ttl=59 time=87.175 ms
84 bytes from 192.168.7.2 icmp_seq=2 ttl=59 time=92.535 ms
84 bytes from 192.168.7.2 icmp_seq=3 ttl=59 time=82.713 ms
84 bytes from 192.168.7.2 icmp_seq=4 ttl=59 time=74.454 ms
84 bytes from 192.168.7.2 icmp_seq=5 ttl=59 time=80.555 ms

PC3> ping 192.168.8.2
[84 bytes from 192.168.8.2 icmp_seq=1 ttl=58 time=90.881 ms
84 bytes from 192.168.8.2 icmp_seq=2 ttl=58 time=98.983 ms
84 bytes from 192.168.8.2 icmp_seq=3 ttl=58 time=74.072 ms
84 bytes from 192.168.8.2 icmp_seq=4 ttl=58 time=76.832 ms
84 bytes from 192.168.8.2 icmp_seq=5 ttl=58 time=104.458 ms

PC3> █
```

PC4:

```
PC4>
[PC4> ping 192.168.1.2
[
[84 bytes from 192.168.1.2 icmp_seq=1 ttl=62 time=48.746 ms
84 bytes from 192.168.1.2 icmp_seq=2 ttl=62 time=31.894 ms
84 bytes from 192.168.1.2 icmp_seq=3 ttl=62 time=27.205 ms
84 bytes from 192.168.1.2 icmp_seq=4 ttl=62 time=27.623 ms
84 bytes from 192.168.1.2 icmp_seq=5 ttl=62 time=36.857 ms

PC4> ping 192.168.2.2

[84 bytes from 192.168.2.2 icmp_seq=1 ttl=61 time=54.326 ms
84 bytes from 192.168.2.2 icmp_seq=2 ttl=61 time=53.787 ms
84 bytes from 192.168.2.2 icmp_seq=3 ttl=61 time=43.463 ms
84 bytes from 192.168.2.2 icmp_seq=4 ttl=61 time=50.703 ms
84 bytes from 192.168.2.2 icmp_seq=5 ttl=61 time=41.165 ms

PC4> ping 192.168.3.2

[84 bytes from 192.168.3.2 icmp_seq=1 ttl=60 time=71.617 ms
84 bytes from 192.168.3.2 icmp_seq=2 ttl=60 time=73.760 ms
84 bytes from 192.168.3.2 icmp_seq=3 ttl=60 time=68.666 ms
84 bytes from 192.168.3.2 icmp_seq=4 ttl=60 time=64.235 ms
84 bytes from 192.168.3.2 icmp_seq=5 ttl=60 time=65.359 ms

PC4> ping 192.168.5.2

[84 bytes from 192.168.5.2 icmp_seq=1 ttl=63 time=31.202 ms
84 bytes from 192.168.5.2 icmp_seq=2 ttl=63 time=17.339 ms
84 bytes from 192.168.5.2 icmp_seq=3 ttl=63 time=15.147 ms
84 bytes from 192.168.5.2 icmp_seq=4 ttl=63 time=17.541 ms
84 bytes from 192.168.5.2 icmp_seq=5 ttl=63 time=16.238 ms

PC4> ping 192.168.6.2

[84 bytes from 192.168.6.2 icmp_seq=1 ttl=62 time=59.404 ms
84 bytes from 192.168.6.2 icmp_seq=2 ttl=62 time=25.888 ms
84 bytes from 192.168.6.2 icmp_seq=3 ttl=62 time=33.429 ms
84 bytes from 192.168.6.2 icmp_seq=4 ttl=62 time=43.463 ms
84 bytes from 192.168.6.2 icmp_seq=5 ttl=62 time=36.670 ms

PC4> ping 192.168.7.2

[84 bytes from 192.168.7.2 icmp_seq=1 ttl=62 time=44.021 ms
84 bytes from 192.168.7.2 icmp_seq=2 ttl=62 time=37.063 ms
84 bytes from 192.168.7.2 icmp_seq=3 ttl=62 time=40.174 ms
84 bytes from 192.168.7.2 icmp_seq=4 ttl=62 time=32.976 ms
84 bytes from 192.168.7.2 icmp_seq=5 ttl=62 time=27.681 ms

PC4> ping 192.168.8.2

[84 bytes from 192.168.8.2 icmp_seq=1 ttl=61 time=60.359 ms
84 bytes from 192.168.8.2 icmp_seq=2 ttl=61 time=42.806 ms
84 bytes from 192.168.8.2 icmp_seq=3 ttl=61 time=47.829 ms
84 bytes from 192.168.8.2 icmp_seq=4 ttl=61 time=52.330 ms
84 bytes from 192.168.8.2 icmp_seq=5 ttl=61 time=44.935 ms

PC4> ]
```

PC5:

```
[PC5>
[PC5> ping 192.168.1.2
[84 bytes from 192.168.1.2 icmp_seq=1 ttl=62 time=52.682 ms
84 bytes from 192.168.1.2 icmp_seq=2 ttl=62 time=26.963 ms
84 bytes from 192.168.1.2 icmp_seq=3 ttl=62 time=35.686 ms
84 bytes from 192.168.1.2 icmp_seq=4 ttl=62 time=28.621 ms
84 bytes from 192.168.1.2 icmp_seq=5 ttl=62 time=38.459 ms

PC5> ping 192.168.2.2
[84 bytes from 192.168.2.2 icmp_seq=1 ttl=61 time=61.165 ms
84 bytes from 192.168.2.2 icmp_seq=2 ttl=61 time=54.552 ms
84 bytes from 192.168.2.2 icmp_seq=3 ttl=61 time=55.265 ms
84 bytes from 192.168.2.2 icmp_seq=4 ttl=61 time=42.333 ms
84 bytes from 192.168.2.2 icmp_seq=5 ttl=61 time=41.716 ms

PC5> ping 192.168.3.2
[84 bytes from 192.168.3.2 icmp_seq=1 ttl=60 time=83.326 ms
84 bytes from 192.168.3.2 icmp_seq=2 ttl=60 time=51.497 ms
84 bytes from 192.168.3.2 icmp_seq=3 ttl=60 time=54.195 ms
84 bytes from 192.168.3.2 icmp_seq=4 ttl=60 time=60.094 ms
84 bytes from 192.168.3.2 icmp_seq=5 ttl=60 time=55.126 ms

PC5> ping 192.168.4.2
[84 bytes from 192.168.4.2 icmp_seq=1 ttl=63 time=37.034 ms
84 bytes from 192.168.4.2 icmp_seq=2 ttl=63 time=22.712 ms
84 bytes from 192.168.4.2 icmp_seq=3 ttl=63 time=16.425 ms
84 bytes from 192.168.4.2 icmp_seq=4 ttl=63 time=19.830 ms
84 bytes from 192.168.4.2 icmp_seq=5 ttl=63 time=14.345 ms

PC5> ping 192.168.6.2
[84 bytes from 192.168.6.2 icmp_seq=1 ttl=62 time=42.661 ms
84 bytes from 192.168.6.2 icmp_seq=2 ttl=62 time=33.119 ms
84 bytes from 192.168.6.2 icmp_seq=3 ttl=62 time=41.746 ms
84 bytes from 192.168.6.2 icmp_seq=4 ttl=62 time=28.804 ms
84 bytes from 192.168.6.2 icmp_seq=5 ttl=62 time=37.016 ms

PC5> ping 192.168.7.2
[84 bytes from 192.168.7.2 icmp_seq=1 ttl=62 time=52.352 ms
84 bytes from 192.168.7.2 icmp_seq=2 ttl=62 time=27.092 ms
84 bytes from 192.168.7.2 icmp_seq=3 ttl=62 time=37.333 ms
84 bytes from 192.168.7.2 icmp_seq=4 ttl=62 time=33.430 ms
84 bytes from 192.168.7.2 icmp_seq=5 ttl=62 time=28.990 ms

PC5> ping 192.168.8.2
[84 bytes from 192.168.8.2 icmp_seq=1 ttl=61 time=69.888 ms
84 bytes from 192.168.8.2 icmp_seq=2 ttl=61 time=38.800 ms
84 bytes from 192.168.8.2 icmp_seq=3 ttl=61 time=43.395 ms
84 bytes from 192.168.8.2 icmp_seq=4 ttl=61 time=49.060 ms
84 bytes from 192.168.8.2 icmp_seq=5 ttl=61 time=45.338 ms

PC5> █
```

PC6:

```
[PC6>
[PC6> ping 192.168.1.2
[
[84 bytes from 192.168.1.2 icmp_seq=1 ttl=61 time=59.147 ms
84 bytes from 192.168.1.2 icmp_seq=2 ttl=61 time=58.377 ms
84 bytes from 192.168.1.2 icmp_seq=3 ttl=61 time=37.653 ms
84 bytes from 192.168.1.2 icmp_seq=4 ttl=61 time=39.431 ms
84 bytes from 192.168.1.2 icmp_seq=5 ttl=61 time=46.904 ms

PC6> ping 192.168.2.2

[84 bytes from 192.168.2.2 icmp_seq=1 ttl=60 time=76.384 ms
84 bytes from 192.168.2.2 icmp_seq=2 ttl=60 time=52.940 ms
84 bytes from 192.168.2.2 icmp_seq=3 ttl=60 time=55.520 ms
84 bytes from 192.168.2.2 icmp_seq=4 ttl=60 time=58.221 ms
84 bytes from 192.168.2.2 icmp_seq=5 ttl=60 time=55.478 ms

PC6> ping 192.168.3.2

[84 bytes from 192.168.3.2 icmp_seq=1 ttl=59 time=94.895 ms
84 bytes from 192.168.3.2 icmp_seq=2 ttl=59 time=69.062 ms
84 bytes from 192.168.3.2 icmp_seq=3 ttl=59 time=70.303 ms
84 bytes from 192.168.3.2 icmp_seq=4 ttl=59 time=76.963 ms
84 bytes from 192.168.3.2 icmp_seq=5 ttl=59 time=72.384 ms

PC6> ping 192.168.4.2

[84 bytes from 192.168.4.2 icmp_seq=1 ttl=62 time=39.152 ms
84 bytes from 192.168.4.2 icmp_seq=2 ttl=62 time=37.595 ms
84 bytes from 192.168.4.2 icmp_seq=3 ttl=62 time=34.614 ms
84 bytes from 192.168.4.2 icmp_seq=4 ttl=62 time=34.659 ms
84 bytes from 192.168.4.2 icmp_seq=5 ttl=62 time=36.748 ms

PC6> ping 192.168.5.2

[84 bytes from 192.168.5.2 icmp_seq=1 ttl=62 time=40.271 ms
84 bytes from 192.168.5.2 icmp_seq=2 ttl=62 time=32.036 ms
84 bytes from 192.168.5.2 icmp_seq=3 ttl=62 time=29.760 ms
84 bytes from 192.168.5.2 icmp_seq=4 ttl=62 time=34.338 ms
84 bytes from 192.168.5.2 icmp_seq=5 ttl=62 time=31.043 ms

PC6> ping 192.168.7.2

[84 bytes from 192.168.7.2 icmp_seq=1 ttl=63 time=25.840 ms
84 bytes from 192.168.7.2 icmp_seq=2 ttl=63 time=24.433 ms
84 bytes from 192.168.7.2 icmp_seq=3 ttl=63 time=16.409 ms
84 bytes from 192.168.7.2 icmp_seq=4 ttl=63 time=22.111 ms
84 bytes from 192.168.7.2 icmp_seq=5 ttl=63 time=25.251 ms

PC6> ping 192.168.8.2

[84 bytes from 192.168.8.2 icmp_seq=1 ttl=62 time=47.788 ms
84 bytes from 192.168.8.2 icmp_seq=2 ttl=62 time=28.405 ms
84 bytes from 192.168.8.2 icmp_seq=3 ttl=62 time=33.225 ms
84 bytes from 192.168.8.2 icmp_seq=4 ttl=62 time=38.989 ms
84 bytes from 192.168.8.2 icmp_seq=5 ttl=62 time=45.771 ms

PC6> █
```

PC7:

```
PC7>
[PC7> ping 192.168.1.2
[84 bytes from 192.168.1.2 icmp_seq=1 ttl=61 time=72.842 ms
84 bytes from 192.168.1.2 icmp_seq=2 ttl=61 time=39.526 ms
84 bytes from 192.168.1.2 icmp_seq=3 ttl=61 time=49.576 ms
84 bytes from 192.168.1.2 icmp_seq=4 ttl=61 time=45.113 ms
84 bytes from 192.168.1.2 icmp_seq=5 ttl=61 time=47.122 ms

PC7> ping 192.168.2.2

[84 bytes from 192.168.2.2 icmp_seq=1 ttl=60 time=66.832 ms
84 bytes from 192.168.2.2 icmp_seq=2 ttl=60 time=54.443 ms
84 bytes from 192.168.2.2 icmp_seq=3 ttl=60 time=62.907 ms
84 bytes from 192.168.2.2 icmp_seq=4 ttl=60 time=61.713 ms
84 bytes from 192.168.2.2 icmp_seq=5 ttl=60 time=61.671 ms

PC7> ping 192.168.3.2

[84 bytes from 192.168.3.2 icmp_seq=1 ttl=59 time=65.850 ms
84 bytes from 192.168.3.2 icmp_seq=2 ttl=59 time=80.266 ms
84 bytes from 192.168.3.2 icmp_seq=3 ttl=59 time=105.776 ms
84 bytes from 192.168.3.2 icmp_seq=4 ttl=59 time=68.900 ms
84 bytes from 192.168.3.2 icmp_seq=5 ttl=59 time=70.008 ms

PC7> ping 192.168.4.2

[84 bytes from 192.168.4.2 icmp_seq=1 ttl=62 time=51.763 ms
84 bytes from 192.168.4.2 icmp_seq=2 ttl=62 time=36.686 ms
84 bytes from 192.168.4.2 icmp_seq=3 ttl=62 time=28.304 ms
84 bytes from 192.168.4.2 icmp_seq=4 ttl=62 time=25.520 ms
84 bytes from 192.168.4.2 icmp_seq=5 ttl=62 time=29.099 ms

PC7> ping 192.168.5.2

[84 bytes from 192.168.5.2 icmp_seq=1 ttl=62 time=41.044 ms
84 bytes from 192.168.5.2 icmp_seq=2 ttl=62 time=34.123 ms
84 bytes from 192.168.5.2 icmp_seq=3 ttl=62 time=24.649 ms
84 bytes from 192.168.5.2 icmp_seq=4 ttl=62 time=46.218 ms
84 bytes from 192.168.5.2 icmp_seq=5 ttl=62 time=30.972 ms

PC7> ping 192.168.6.2

[84 bytes from 192.168.6.2 icmp_seq=1 ttl=63 time=31.814 ms
84 bytes from 192.168.6.2 icmp_seq=2 ttl=63 time=23.590 ms
84 bytes from 192.168.6.2 icmp_seq=3 ttl=63 time=17.232 ms
84 bytes from 192.168.6.2 icmp_seq=4 ttl=63 time=17.598 ms
84 bytes from 192.168.6.2 icmp_seq=5 ttl=63 time=25.091 ms

PC7> ping 192.168.8.2

[84 bytes from 192.168.8.2 icmp_seq=1 ttl=62 time=41.731 ms
84 bytes from 192.168.8.2 icmp_seq=2 ttl=62 time=34.122 ms
84 bytes from 192.168.8.2 icmp_seq=3 ttl=62 time=37.095 ms
84 bytes from 192.168.8.2 icmp_seq=4 ttl=62 time=38.324 ms
84 bytes from 192.168.8.2 icmp_seq=5 ttl=62 time=36.046 ms

PC7> █
```

PC8:

```
[PC8>
PC8>
[PC8> ping 192.168.1.2
[84 bytes from 192.168.1.2 icmp_seq=1 ttl=60 time=74.115 ms
 84 bytes from 192.168.1.2 icmp_seq=2 ttl=60 time=65.899 ms
 84 bytes from 192.168.1.2 icmp_seq=3 ttl=60 time=57.376 ms
 84 bytes from 192.168.1.2 icmp_seq=4 ttl=60 time=61.777 ms
 84 bytes from 192.168.1.2 icmp_seq=5 ttl=60 time=71.066 ms

PC8> ping 192.168.2.2

[84 bytes from 192.168.2.2 icmp_seq=1 ttl=59 time=85.374 ms
 84 bytes from 192.168.2.2 icmp_seq=2 ttl=59 time=80.751 ms
 84 bytes from 192.168.2.2 icmp_seq=3 ttl=59 time=84.039 ms
 84 bytes from 192.168.2.2 icmp_seq=4 ttl=59 time=91.879 ms
 84 bytes from 192.168.2.2 icmp_seq=5 ttl=59 time=93.984 ms

PC8> ping 192.168.3.2

[84 bytes from 192.168.3.2 icmp_seq=1 ttl=58 time=93.967 ms
 84 bytes from 192.168.3.2 icmp_seq=2 ttl=58 time=96.603 ms
 84 bytes from 192.168.3.2 icmp_seq=3 ttl=58 time=74.695 ms
 84 bytes from 192.168.3.2 icmp_seq=4 ttl=58 time=87.593 ms
 84 bytes from 192.168.3.2 icmp_seq=5 ttl=58 time=81.742 ms

PC8> ping 192.168.4.2

[84 bytes from 192.168.4.2 icmp_seq=1 ttl=61 time=63.175 ms
 84 bytes from 192.168.4.2 icmp_seq=2 ttl=61 time=42.513 ms
 84 bytes from 192.168.4.2 icmp_seq=3 ttl=61 time=40.516 ms
 84 bytes from 192.168.4.2 icmp_seq=4 ttl=61 time=46.673 ms
 84 bytes from 192.168.4.2 icmp_seq=5 ttl=61 time=61.838 ms

PC8> ping 192.168.5.2

[84 bytes from 192.168.5.2 icmp_seq=1 ttl=61 time=57.600 ms
 84 bytes from 192.168.5.2 icmp_seq=2 ttl=61 time=57.354 ms
 84 bytes from 192.168.5.2 icmp_seq=3 ttl=61 time=52.642 ms
 84 bytes from 192.168.5.2 icmp_seq=4 ttl=61 time=37.940 ms
 84 bytes from 192.168.5.2 icmp_seq=5 ttl=61 time=52.000 ms

PC8> ping 192.168.6.2

[84 bytes from 192.168.6.2 icmp_seq=1 ttl=62 time=42.219 ms
 84 bytes from 192.168.6.2 icmp_seq=2 ttl=62 time=29.933 ms
 84 bytes from 192.168.6.2 icmp_seq=3 ttl=62 time=28.065 ms
 84 bytes from 192.168.6.2 icmp_seq=4 ttl=62 time=32.060 ms
 84 bytes from 192.168.6.2 icmp_seq=5 ttl=62 time=29.479 ms

PC8> ping 192.168.7.2

[84 bytes from 192.168.7.2 icmp_seq=1 ttl=62 time=41.970 ms
 84 bytes from 192.168.7.2 icmp_seq=2 ttl=62 time=34.519 ms
 84 bytes from 192.168.7.2 icmp_seq=3 ttl=62 time=29.427 ms
 84 bytes from 192.168.7.2 icmp_seq=4 ttl=62 time=26.114 ms
 84 bytes from 192.168.7.2 icmp_seq=5 ttl=62 time=33.396 ms

PC8> █
```