

# lab9

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- [github lab link](#)

## task1 - nets:

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- net1 :

name	value
ip/mask	176.141.64.0/26
ip	176.141.64.0
mask	255.255.255.192
net size	62
min addr	176.141.64.1
max addr	176.141.64.62
broadcast	176.141.64.63

- net2 :

name	value
ip/mask	176.141.0.0/26
ip	176.141.0.0
mask	255.255.255.192
net size	62
min addr	176.141.0.1
max addr	176.141.0.62
broadcast	176.141.0.63

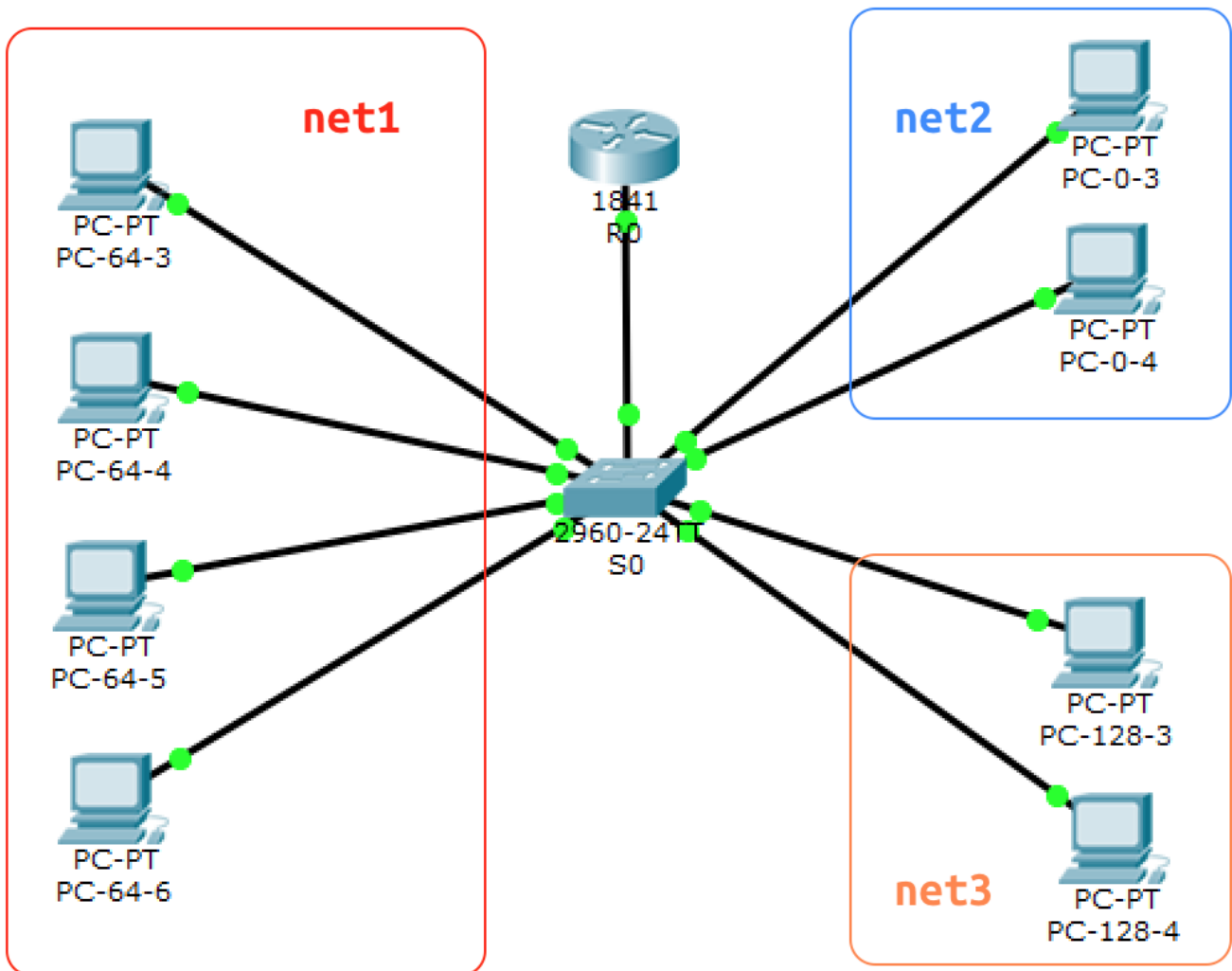
- net3 :

name	value
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name	value
ip/mask	176.141.128.0/26
ip	176.141.128.0
mask	255.255.255.192
net size	62
min addr	176.141.128.1
max addr	176.141.128.62
broadcast	176.141.128.63

task2 - schema:



task3 - ip configs:

## net1 :

- PC-64-3

```
Link-local IPv6 Address.....: FE80::201:43FF:FE8D:D82
IP Address.....: 176.141.64.3
Subnet Mask.....: 255.255.255.192
Default Gateway.....: 176.141.64.1
```

- PC-64-4

```
Link-local IPv6 Address.....: FE80::20A:F3FF:FE46:638D
IP Address.....: 176.141.64.4
Subnet Mask.....: 255.255.255.192
Default Gateway.....: 176.141.64.1
```

- PC-64-5

```
Link-local IPv6 Address.....: FE80::260:3EFF:FEB4:E130
IP Address.....: 176.141.64.5
Subnet Mask.....: 255.255.255.192
Default Gateway.....: 176.141.64.1
```

- PC-64-6

```
Link-local IPv6 Address.....: FE80::230:A3FF:FE0D:862C
IP Address.....: 176.141.64.6
Subnet Mask.....: 255.255.255.192
Default Gateway.....: 176.141.64.1
```

## net2 :

- PC-0-3

```
Link-local IPv6 Address.....: FE80::201:96FF:FE60:215D
IP Address.....: 176.141.0.3
Subnet Mask.....: 255.255.255.192
Default Gateway.....: 176.141.0.1
```

- PC-0-4

```
Link-local IPv6 Address.....: FE80::260:2FFF:FE98:DE11
IP Address.....: 176.141.0.4
```

```
Subnet Mask.....: 255.255.255.192
Default Gateway.....: 176.141.0.1
```

### net3 :

- PC-128-3

```
Link-local IPv6 Address.....: FE80::206:2AFF:FE82:4C16
IP Address.....: 176.141.128.3
Subnet Mask.....: 255.255.255.192
Default Gateway.....: 176.141.128.1
```

- PC-128-4

```
Link-local IPv6 Address.....: FE80::2D0:BCFF:FE6D:EAE2
IP Address.....: 176.141.128.4
Subnet Mask.....: 255.255.255.192
Default Gateway.....: 176.141.128.1
```

## task4 - switch vlan config:

---

- net1 :

```
S0(config)#interface vlan1
S0(config-if)#ip address 176.141.64.2 255.255.255.192
S0(config-if)#no shutdown
```

- net2 & net3 :

```
S0(config)#vlan 10
S0(config-vlan)#exit
S0(config)#vlan 10
S0(config-vlan)#name Students-141-0
S0(config-vlan)#exit
S0(config)#vlan 20
S0(config-vlan)#name Faculty-141-128
S0(config-vlan)#exit
```

- default gateway: ip default-gateway 176.141.64.1

- Fa0/5 & Fa0/6 to VLAN 10 :

```
S0(config)#interface FastEthernet0/5
S0(config-if)#switchport mode access
```

```
S0(config-if)#switchport access vlan 10
S0(config-if)#interface FastEthernet0/6
S0(config-if)#switchport mode access
S0(config-if)#switchport access vlan 10
```

- Fa0/7 & Fa0/8 to VLAN 20 :

```
S0(config)#interface FastEthernet0/7
S0(config-if)#switchport mode access
S0(config-if)#switchport access vlan 20
S0(config-if)#interface FastEthernet0/8
S0(config-if)#switchport mode access
S0(config-if)#switchport access vlan 20
```

- save configs: S0#copy running-config startup-config
- show vlan brief :

VLAN	Name	Status	Ports
1	default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/10, Fa0/11, Fa0/12, Fa0/13 Fa0/14, Fa0/15, Fa0/16, Fa0/17 Fa0/18, Fa0/19, Fa0/20, Fa0/21 Fa0/22, Fa0/23, Fa0/24, Gig0/1 Gig0/2
10	Students-141-0	active	Fa0/5, Fa0/6
20	Faculty-141-128	active	Fa0/7, Fa0/8
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

## task5 - quiz answers:

1. Все ли другие порты коммутатора расположены во VLAN 1? - Нет.
2. Какие порты коммутатора расположены во VLAN 10? - FastEthernet0/5, FastEthernet0/6.
3. Какие порты коммутатора расположены во VLAN 20? - FastEthernet0/7, FastEthernet0/8.
4. Выполните эхо-запрос с ПК на коммутатор с адресом 176.141.64.2
  - ping 176.141.64.2 from PC-64-3 :

```
Ping statistics for 176.141.64.2:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
  Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

- ping 176.141.64.2 from PC-0-3 :

```
Ping statistics for 176.141.64.2:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss)
```

- ping 176.141.64.2 from PC-128-3 :

```
Ping statistics for 176.141.64.2:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss)
```

##### 5. Выполните эхо-запрос с PC-64-3 на PC-0-4 и PC-128-4

- ping 176.141.0.4 from PC-64-3 :

```
Ping statistics for 176.141.0.4:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss)
```

- ping 176.141.128.4 from PC-64-3 :

```
Ping statistics for 176.141.128.4:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss)
```

6. PC-64-3 может установить связь с коммутатором ( S0 ), а с PC-0-4 и PC-128-4 - нет, так как для коммутатора был установлен шлюз по умолчанию 176.141.64.1

7. Компьютеры не могут установить связь друг с другом, так как не настроена маршрутизация между S0 и net2 , net3

## task6 - router config

- switch to router config:

```
S0(config)#interface FastEthernet0/9
S0(config-if)#switchport mode trunk
```

- R0 in net1 :

```
R0(config)#interface FastEthernet0/0
R0(config-if)#ip address 176.141.64.1 255.255.255.192
```

```
R0(config-if)#no shutdown
R0(config-if)#exit
```

- R0 in net2 :

```
R0(config)#interface FastEthernet0/0.10
R0(config-subif)#encapsulation dot1q 10
R0(config-subif)#ip address 176.141.0.1 255.255.255.192
R0(config-subif)#exit
```

- R0 in net3 :

```
R0(config)#interface FastEthernet0/0.20
R0(config-subif)#encapsulation dot1q 20
R0(config-subif)#ip address 176.141.128.1 255.255.255.192
R0(config-subif)#exit
```

## task7 - check router configs

---

- S0#show interfaces trunk :

Port	Mode	Encapsulation	Status	Native vlan
Fa0/9	on	802.1q	trunking	1
Port	Vlans allowed on trunk			
Fa0/9	1-1005			
Port	Vlans allowed and active in management domain			
Fa0/9	1,10,20			
Port	Vlans in spanning tree forwarding state and not pruned			
Fa0/9	1,10,20			

- R0#show ip interface :

```
FastEthernet0/0 is up, line protocol is up (connected)
  Internet address is 176.141.64.1/26
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
FastEthernet0/0.10 is up, line protocol is up (connected)
  Internet address is 176.141.0.1/26
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
FastEthernet0/0.20 is up, line protocol is up (connected)
```

```
Internet address is 176.141.128.1/26
Broadcast address is 255.255.255.255
Address determined by setup command
MTU is 1500 bytes
FastEthernet0/1 is administratively down, line protocol is down (disabled)
Internet protocol processing disabled
Vlan1 is administratively down, line protocol is down
Internet protocol processing disabled
```

- `R0#show ip interface brief :`

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	176.141.64.1	YES	manual	up	up
FastEthernet0/0.10	176.141.0.1	YES	manual	up	up
FastEthernet0/0.20	176.141.128.1	YES	manual	up	up
FastEthernet0/1	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down

- `R0#show ip route :`

```
176.141.0.0/26 is subnetted, 3 subnets
C    176.141.0.0 is directly connected, FastEthernet0/0.10
C    176.141.64.0 is directly connected, FastEthernet0/0
C    176.141.128.0 is directly connected, FastEthernet0/0.20
```

## task8 - check connections

`net1 -> net2 ( PC-64-3 -> PC-0-3 )`

- `ping 176.141.0.3`

```
Reply from 176.141.0.3: bytes=32 time=0ms TTL=127
Reply from 176.141.0.3: bytes=32 time=0ms TTL=127
Reply from 176.141.0.3: bytes=32 time=0ms TTL=127
Reply from 176.141.0.3: bytes=32 time=0ms TTL=127
```

Ping statistics for 176.141.0.3:

```
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
  Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

`net1 -> net3 ( PC-64-3 -> PC-128-3 )`

- `ping 176.141.128.3`



```
Reply from 176.141.128.3: bytes=32 time=0ms TTL=127
Reply from 176.141.128.3: bytes=32 time=0ms TTL=127
Reply from 176.141.128.3: bytes=32 time=0ms TTL=127
Reply from 176.141.128.3: bytes=32 time=0ms TTL=127
```

```
Ping statistics for 176.141.128.3:
```

```
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

```
Approximate round trip times in milli-seconds:
```

```
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
net3 -> net1 ( PC-128-4 -> PC-64-6 )
```

- ping 176.141.64.6

```
Reply from 176.141.64.6: bytes=32 time=0ms TTL=127
Reply from 176.141.64.6: bytes=32 time=0ms TTL=127
Reply from 176.141.64.6: bytes=32 time=0ms TTL=127
Reply from 176.141.64.6: bytes=32 time=0ms TTL=127
```

```
Ping statistics for 176.141.64.6:
```

```
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

```
Approximate round trip times in milli-seconds:
```

```
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

and so on, all connections work fine!