

Лабораторная работа №9  
по дисциплине «Компьютерные сети»  
Вариант IV

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## I. Назначить адреса подсетей:

- a) Подсеть 1: 192.168.x.0 /24
- b) Подсеть 2: 192.168.x+1.0 /24
- c) Подсеть 3: 192.168.x+2.0 /24

Подсеть 1 – 192.168.4.0/24

Подсеть 2 – 192.168.5.0/24

Подсеть 3 – 192.168.6.0/24

## II. Настроить поддержку трех виртуальных локальных сетей (Vlan 10, 20, 30) на коммутаторе.

Switch0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Switch(vlan)#vlan 10
VLAN 10 added:
  Name: VLAN0010
Switch(vlan)#
Switch(vlan)#vlan 20
VLAN 20 added:
  Name: VLAN0020
Switch(vlan)#
Switch(vlan)#vlan 30
VLAN 30 added:
  Name: VLAN0030
Switch(vlan)#exit
APPLY completed.
Exiting....
Switch#sh vlan
```

VLAN	Name	Status	Ports
1	default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/8 Fa0/9, 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	VLAN0010	active	
20	VLAN0020	active	
30	VLAN0030	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

VLAN Type SAID MTU Parent RingNo BridgeNo Stp BrgdMode Transl Trans2

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Physical Config **CLI** Attributes

## IOS Command Line Interface

10	enet	100010	1500	-	-	-	-	-	0	0
20	enet	100020	1500	-	-	-	-	-	0	0
30	enet	100030	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
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Remote SPAN VLANs

Primary	Secondary	Type	Ports
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Switch#

Switch#conf

Configuring from terminal, memory, or network [terminal]?

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

Switch(config)#int range fa 0/1-2

Switch(config-if-range)#switchport mode access

Switch(config-if-range)#switchport access vlan 10

Switch(config-if-range)#

Switch(config-if-range)#exit

Switch(config)#int range fa 0/3-4

Switch(config-if-range)#switchport mode access

Switch(config-if-range)#switchport access vlan 30

Switch(config-if-range)#exit

Switch(config)#int range fa 0/5-7

Switch(config-if-range)#switchport mode access

Switch(config-if-range)#switchport access vlan 20

Switch(config-if-range)#exit

Switch(config)#int g0/1

Switch(config-if)#switchport mode trunk

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Switch0

Physical
Config
CLI
Attributes

IOS Command Line Interface

Switch#sh vlan

VLAN	Name	Status	Ports
1	default	active	Fa0/8, Fa0/9, 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, Gig0/2
10	VLAN0010	active	Fa0/1, Fa0/2
20	VLAN0020	active	Fa0/5, Fa0/6, Fa0/7
30	VLAN0030	active	Fa0/3, Fa0/4
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
10	enet	100010	1500	-	-	-	-	-	0	0
20	enet	100020	1500	-	-	-	-	-	0	0
30	enet	100030	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

Remote SPAN VLANs

--More--

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III. Настроить маршрутизацию между виртуальными локальными сетями на маршрутизаторе.

Router0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router(config)#int g0/0/0.1
Router(config-subif)#encapsulation dot1q 10
^
% Invalid input detected at '^' marker.

Router(config-subif)#encapsulation dot1q 10
Router(config-subif)#ip address 192.168.4.254 255.255.255.0
Router(config-subif)#exit
Router(config)#int g0/0/0.2
Router(config-subif)#encapsulation dot1q 10

%Configuration of multiple subinterfaces of the same main
interface with the same VID (10) is not permitted.
This VID is already configured on GigabitEthernet0/0/0.1.

Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip address 192.168.5.254 255.255.255.0
Router(config-subif)#exit
Router(config)#int g0/0/0.3
Router(config-subif)#encapsulation dot1q 30
Router(config-subif)#ip address 192.168.6.254 255.255.255.0
Router(config-subif)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#sh ip int brief
Interface                IP-Address      OK? Method Status        Protocol
GigabitEthernet0/0/0     unassigned      YES unset    up            up
GigabitEthernet0/0/0.1   192.168.4.254   YES manual   up            up
GigabitEthernet0/0/0.2   192.168.5.254   YES manual   up            up
GigabitEthernet0/0/0.3   192.168.6.254   YES manual   up            up
GigabitEthernet0/0/1     unassigned      YES unset    up            down
GigabitEthernet0/0/2     unassigned      YES unset    up            down
Vlan1                    unassigned      YES unset    administrativ down    down
```

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Пример ping:

PC1

Physical Config **Desktop** Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.4.1

Pinging 192.168.4.1 with 32 bytes of data:

Reply from 192.168.4.1: bytes=32 time<1ms TTL=127
Reply from 192.168.4.1: bytes=32 time<1ms TTL=127
Reply from 192.168.4.1: bytes=32 time<1ms TTL=127
Reply from 192.168.4.1: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.4.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

IV. Выделить и озаглавить на схеме каждую виртуальную локальную сеть.

