

Министерство образования Республики Беларусь

Учреждение образования
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ
ИНФОРМАТИКИ И РАДИОЭЛЕКТРОНИКИ

Факультет компьютерных систем и сетей

Кафедра электронных вычислительных машин

Дисциплина: Оборудование компьютерных сетей

ОТЧЕТ
по лабораторной работе № 2

ВАРИАНТ 11

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МИНСК 2024

1 ПРАКТИЧЕСКАЯ ЧАСТЬ

1.1 Часть рабочей конфигурации Switch 1(N1)

```
hostname N1
!
enable password 1234
!
ip domain-name main.com
!
username alexei privilege 1 password 0 1234
!
spanning-tree mode pvst
!
interface FastEthernet0/1
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface FastEthernet0/2
shutdown
!
...
!
interface FastEthernet0/24
shutdown
!
interface GigabitEthernet0/1
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface GigabitEthernet0/2
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface Vlan10
ip address 9.192.0.5 255.192.0.0
!
ip default-gateway 9.192.0.1
!
access-list 10 permit host 9.192.0.2
access-list 10 deny any
```

```
!  
line vty 0 4  
access-class 10 in  
login local  
transport input ssh  
line vty 5 15  
access-class 10 in  
login local  
transport input ssh  
!
```

1.2 Часть рабочей конфигурации Switch 2 (N2)

```
hostname N2  
!  
enable password 1234  
!  
ip domain-name main.com  
!  
username alexei privilege 1 password 0 1234  
!  
spanning-tree mode pvst  
!  
interface FastEthernet0/1  
switchport trunk native vlan 100  
switchport trunk allowed vlan 10,20,30,100  
switchport mode trunk  
!  
...  
!  
interface FastEthernet0/3  
switchport trunk native vlan 100  
switchport trunk allowed vlan 10,20,30,100  
switchport mode trunk  
!  
interface FastEthernet0/4  
shutdown  
!  
...  
!  
interface FastEthernet0/24  
shutdown  
!  
interface GigabitEthernet0/1
```

```

shutdown
!
interface GigabitEthernet0/2
shutdown
!
interface Vlan10
ip address 9.192.0.6 255.192.0.0
!
ip default-gateway 9.192.0.1
!
access-list 10 permit host 9.192.0.2
access-list 10 deny any
!
line vty 0 4
access-class 10 in
login local
transport input ssh
line vty 5 15
access-class 10 in
login local
transport input ssh
!

```

1.3 Часть рабочей конфигурации Switch 3 (N3)

```

hostname N3
!
enable password 1234
!
ip domain-name main.com
!
username alexei privilege 1 password 0 1234
!
spanning-tree mode pvst
!
interface FastEthernet0/1
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface FastEthernet0/2
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk

```

```

!
interface FastEthernet0/3
shutdown
!
...
!
interface FastEthernet0/24
shutdown
!
interface GigabitEthernet0/1
shutdown
!
interface GigabitEthernet0/2
shutdown
!
interface Vlan10
ip address 9.192.0.7 255.192.0.0
!
ip default-gateway 9.192.0.1
!
access-list 10 permit host 9.192.0.2
access-list 10 deny any
!
line vty 0 4
access-class 10 in
login local
transport input ssh
line vty 5 15
access-class 10 in
login local
transport input ssh
!

```

1.4 Часть рабочей конфигурации Switch 4 (N4)

```

hostname N4
!
enable password 1234
!
ip domain-name main.com
!
username alexei privilege 1 password 0 1234
!
spanning-tree mode pvst

```

```

!
interface FastEthernet0/1
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
channel-group 1 mode on
switchport mode trunk
duplex full
speed 100
!
interface FastEthernet0/2
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
channel-group 1 mode on
switchport mode trunk
duplex full
speed 100
!
interface FastEthernet0/3
shutdown
!
...
!
interface FastEthernet0/24
shutdown
!
interface GigabitEthernet0/1
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface GigabitEthernet0/2
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface Port-channel 1
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface Vlan10
ip address 9.192.0.4 255.192.0.0
!
ip default-gateway 9.192.0.1

```

```
!  
access-list 10 permit host 9.192.0.2  
access-list 10 deny any  
!  
line vty 0 4  
access-class 10 in  
login local  
transport input ssh  
line vty 5 15  
access-class 10 in  
login local  
transport input ssh  
!
```

1.5 Часть рабочей конфигурации Switch 5 (N5)

```
hostname N5  
!  
enable password 1234  
!  
ip domain-name main.com  
!  
username alexei privilege 1 password 0 1234  
!  
spanning-tree mode pvst  
!  
interface FastEthernet0/1  
switchport access vlan 10  
switchport mode access  
switchport port-security  
switchport port-security mac-address sticky  
switchport port-security violation protect  
switchport port-security mac-address sticky 0004.9AD0.284E  
spanning-tree portfast  
spanning-tree bpduguard enable  
!  
interface FastEthernet0/2  
switchport access vlan 20  
switchport mode access  
spanning-tree portfast  
spanning-tree bpduguard enable  
!  
interface FastEthernet0/3  
switchport access vlan 30
```

```

switchport mode access
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/4
shutdown
!
...
!
interface FastEthernet0/24
shutdown
!
interface GigabitEthernet0/1
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface GigabitEthernet0/2
shutdown
!
interface Vlan10
ip address 9.192.0.9 255.192.0.0
!
ip default-gateway 9.192.0.1
!
access-list 10 permit host 9.192.0.2
access-list 10 deny any
!
line vty 0 4
access-class 10 in
login local
transport input ssh
line vty 5 15
access-class 10 in
login local
transport input ssh
!

```

1.6 Часть рабочей конфигурации Switch 6 (N6)

```

hostname N6
!
enable password 1234
!

```



```
ip domain-name main.com
!
username alexei privilege 1 password 0 1234
!
spanning-tree mode pvst
!
interface FastEthernet0/1
switchport access vlan 20
switchport mode access
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/2
switchport access vlan 20
switchport mode access
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/3
switchport access vlan 30
switchport mode access
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/4
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface FastEthernet0/5
shutdown
!
...
!
interface FastEthernet0/24
shutdown
!
interface GigabitEthernet0/1
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface GigabitEthernet0/2
shutdown
```

```

!
interface Vlan10
ip address 9.192.0.3 255.192.0.0
!
ip default-gateway 9.192.0.1
!
access-list 10 permit host 9.192.0.2
access-list 10 deny any
!
line vty 0 4
access-class 10 in
login local
transport input ssh
line vty 5 15
access-class 10 in
login local
transport input ssh
!

```

1.7 Часть рабочей конфигурации Switch 7 (N7)

```

hostname N7
!
enable password 1234
!
ip domain-name main.com
!
username alexei privilege 1 password 0 1234
!
spanning-tree mode pvst
!
interface FastEthernet0/1
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface FastEthernet0/2
shutdown
!
...
!
interface FastEthernet0/24
shutdown
!

```

```

interface GigabitEthernet0/1
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface GigabitEthernet0/2
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport mode trunk
!
interface Vlan10
ip address 9.192.0.8 255.192.0.0
!
ip default-gateway 9.192.0.1
!
access-list 10 permit host 9.192.0.2
access-list 10 deny any
!
line vty 0 4
access-class 10 in
login local
transport input ssh
line vty 5 15
access-class 10 in
login local
transport input ssh
!

```

1.8 Часть рабочей конфигурации Switch 8 (N8)

```

hostname N8
!
enable password 1234
!
ip routing
!
username alexei password 0 1234
!
ip domain-name main.com
!
spanning-tree mode pvst
spanning-tree vlan 10,20,30,100 priority 24576
!
interface Port-channel 1

```

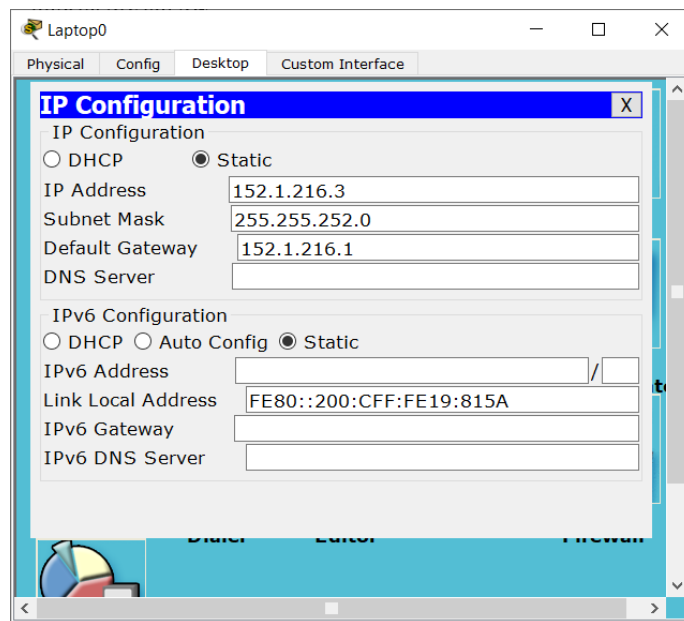
```

switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport trunk encapsulation dot1q
switchport mode trunk
!
interface FastEthernet0/1
channel-group 1 mode on
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport trunk encapsulation dot1q
switchport mode trunk
duplex full
speed 100
!
interface FastEthernet0/2
channel-group 1 mode on
switchport trunk native vlan 100
switchport trunk allowed vlan 10,20,30,100
switchport trunk encapsulation dot1q
switchport mode trunk
duplex full
speed 100
!
interface FastEthernet0/3
shutdown
!
...
!
interface FastEthernet0/24
shutdown
!
interface GigabitEthernet0/1
shutdown
!
interface GigabitEthernet0/2
shutdown
!
interface Vlan10
ip address 9.192.0.1 255.192.0.0
!
interface Vlan20
ip address 152.1.216.1 255.255.252.0
!
interface Vlan30

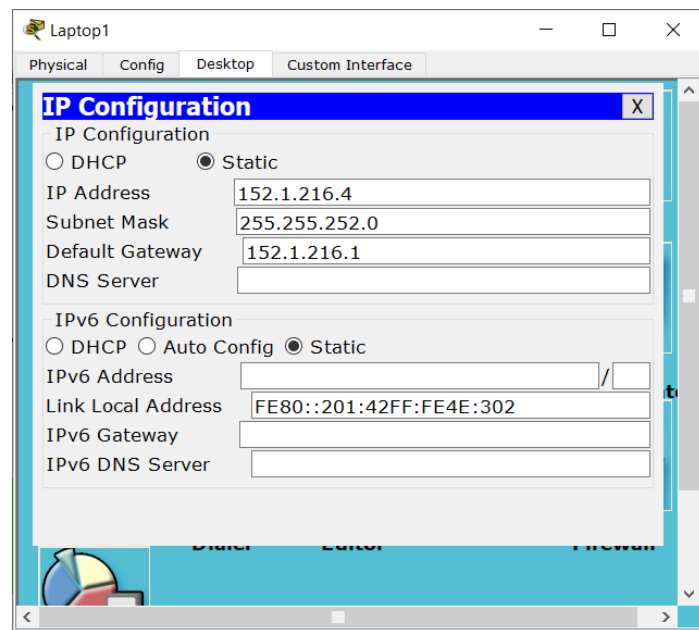
```

```
ip address 171.80.24.1 255.255.252.0
!  
interface Vlan100  
ip address 90.32.0.1 255.224.0.0  
!  
access-list 10 permit host 9.192.0.2  
access-list 10 deny any  
!  
line vty 0 4  
access-class 10 in  
login local  
transport input ssh  
line vty 5 15  
access-class 10 in  
login local  
transport input ssh  
!
```

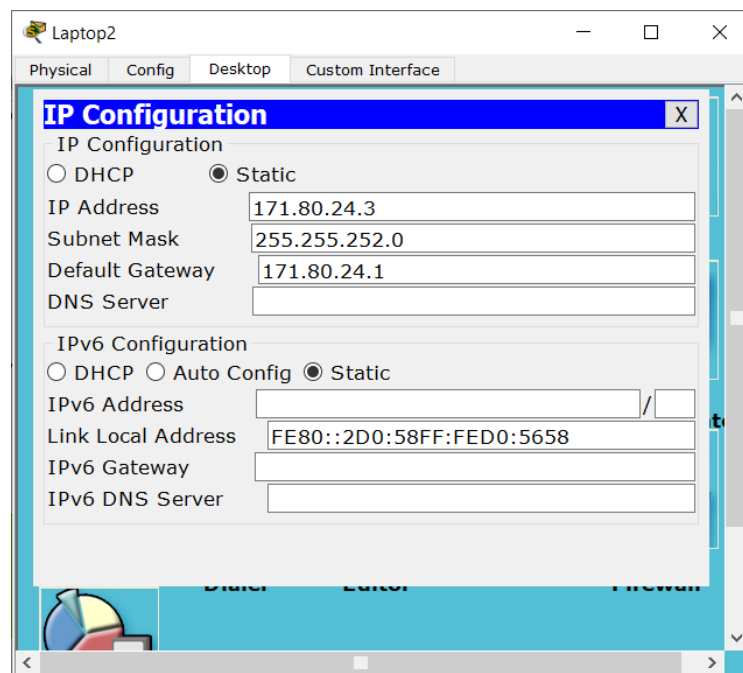
1.9 IP Configuration Laptop0



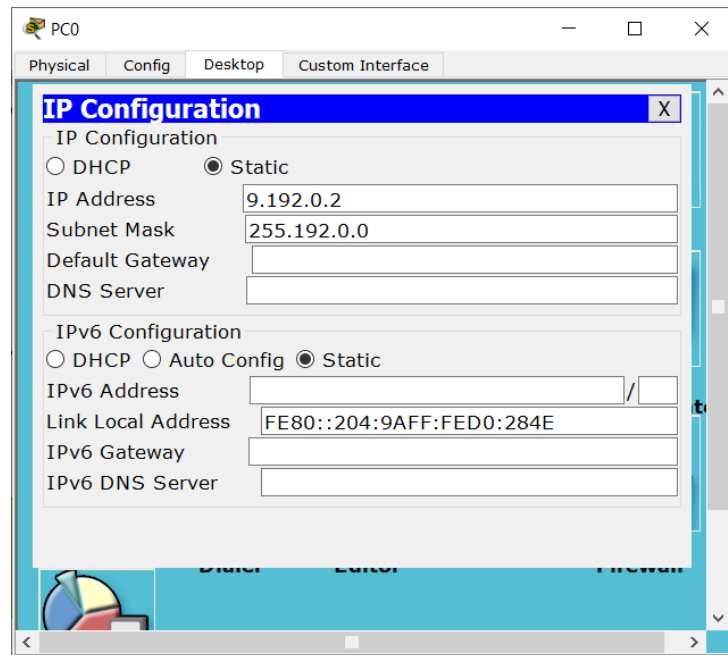
1.10 IP Configuration Laptop1



1.11 IP Configuration Laptop2



1.12 IP Configuration PC0

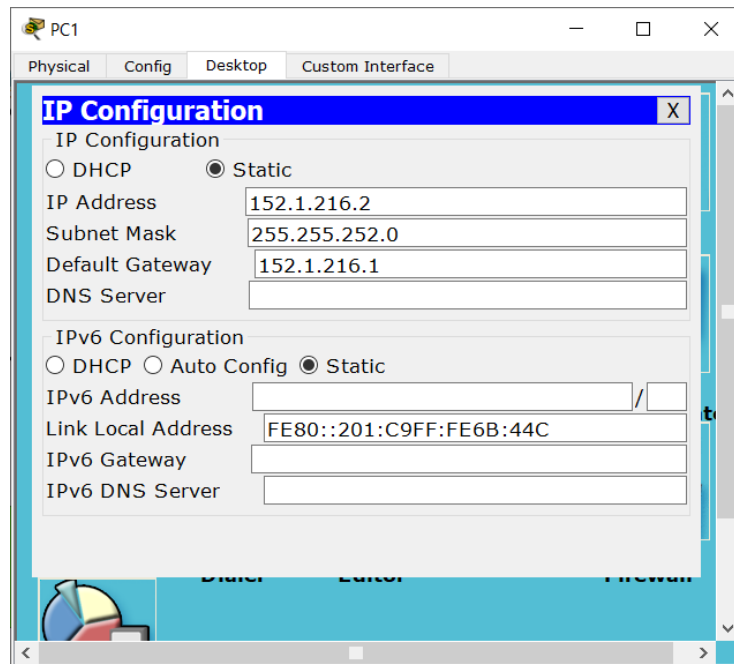


The screenshot shows the 'IP Configuration' window for PC0. The window has tabs for 'Physical', 'Config', 'Desktop', and 'Custom Interface'. The 'Config' tab is active. The 'IP Configuration' section is expanded, showing 'IP Configuration' and 'IPv6 Configuration' sub-sections. In the 'IP Configuration' section, the 'Static' radio button is selected. The 'IP Address' field is set to '9.192.0.2', the 'Subnet Mask' is '255.192.0.0', and the 'Default Gateway' and 'DNS Server' fields are empty. In the 'IPv6 Configuration' section, the 'Static' radio button is selected. The 'IPv6 Address' field is empty, the 'Link Local Address' is 'FE80::204:9AFF:FED0:284E', and the 'IPv6 Gateway' and 'IPv6 DNS Server' fields are empty.

IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	9.192.0.2
Subnet Mask	255.192.0.0
Default Gateway	
DNS Server	

IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::204:9AFF:FED0:284E
IPv6 Gateway	
IPv6 DNS Server	

1.13 IP Configuration PC1

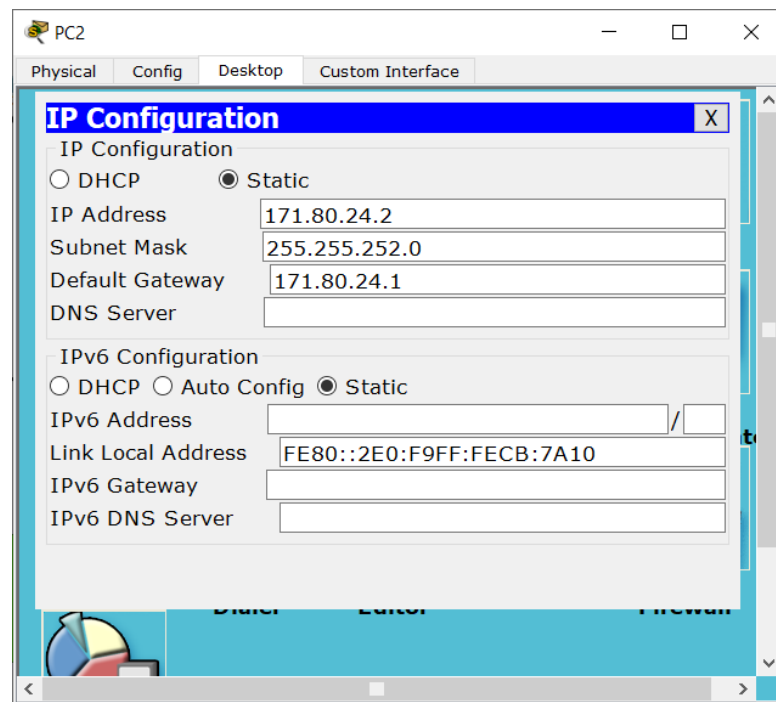


The screenshot shows the 'IP Configuration' window for PC1. The window has tabs for 'Physical', 'Config', 'Desktop', and 'Custom Interface'. The 'Config' tab is active. The 'IP Configuration' section is expanded, showing 'IP Configuration' and 'IPv6 Configuration' sub-sections. In the 'IP Configuration' section, the 'Static' radio button is selected. The 'IP Address' field is set to '152.1.216.2', the 'Subnet Mask' is '255.255.252.0', and the 'Default Gateway' is '152.1.216.1'. The 'DNS Server' field is empty. In the 'IPv6 Configuration' section, the 'Static' radio button is selected. The 'IPv6 Address' field is empty, the 'Link Local Address' is 'FE80::201:C9FF:FE6B:44C', and the 'IPv6 Gateway' and 'IPv6 DNS Server' fields are empty.

IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	152.1.216.2
Subnet Mask	255.255.252.0
Default Gateway	152.1.216.1
DNS Server	

IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::201:C9FF:FE6B:44C
IPv6 Gateway	
IPv6 DNS Server	

1.14 IP Configuration PC2



The screenshot shows a window titled "PC2" with tabs for "Physical", "Config", "Desktop", and "Custom Interface". The "Config" tab is active, displaying the "IP Configuration" settings. The window has a blue title bar and a standard Windows-style border. The configuration is divided into two sections: "IP Configuration" and "IPv6 Configuration".

IP Configuration

- ☐ DHCP ☒ Static
- IP Address: 171.80.24.2
- Subnet Mask: 255.255.252.0
- Default Gateway: 171.80.24.1
- DNS Server: (empty)

IPv6 Configuration

- ☐ DHCP ☐ Auto Config ☒ Static
- IPv6 Address: (empty) / (empty)
- Link Local Address: FE80::2E0:F9FF:FECB:7A10
- IPv6 Gateway: (empty)
- IPv6 DNS Server: (empty)

РАБОЧИЕ МАТЕРИАЛЫ

VLAN 10	9.192.0.0/10	Административный вилан
VLAN 20	152.1.216.0/22	Пользовательский вилан 1
VLAN 30	171.80.24.0/22	Пользовательский вилан 2
VLAN 100	90.32.0.0/11	Вилан для оригинального трафика (native)

