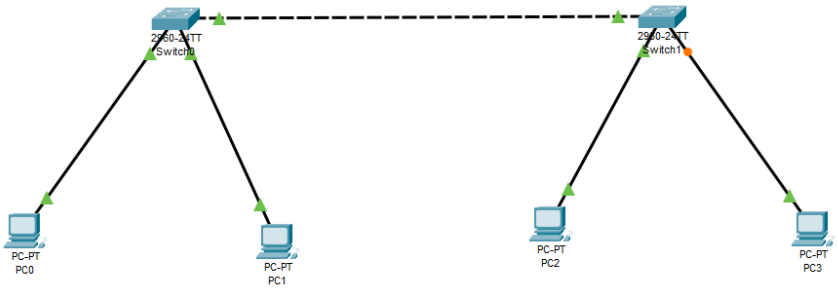
Практическая работа – Связываем VLAN с помощью роутера

1. Строю сеть



2. Настройка Switch0

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fa0/1
Switch(config-if)#sw ac vl 10
% Access VLAN does not exist. Creating vlan 10
Switch(config-if)#no sh
Switch(config-if)#int fa0/2
Switch(config-if)#sw ac vl 20
% Access VLAN does not exist. Creating vlan 20
Switch(config-if)#no sh
Switch(config-if)#exit
```

3. Настройка Swtich1

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fa0/1
Switch(config-if)#sw ac vl 10
% Access VLAN does not exist. Creating vlan 10
Switch(config-if)#no sh
Switch(config-if)#int fa0/2
Switch(config-if)#sw ac vl 20
% Access VLAN does not exist. Creating vlan 20
Switch(config-if)#no sh
Switch(config-if)#exit
```

4. Switch0 и Switch1 trunk-порт

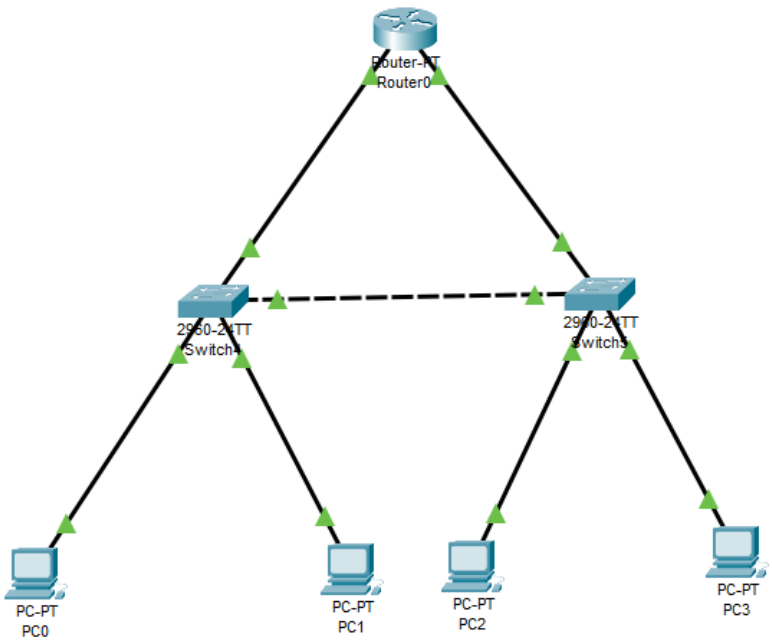
```
Switch(config)#int gi0/1
Switch(config-if)#sw mode trunk
Switch(config-if)#no sh
Switch(config-if)#exit
```

5. Проверка работоспособности с 0 на 2 и 1 на 3 (Передача пакетов заключается в разбиении данных на небольшие блоки, которые передаются по сети и собираются обратно на получателе.)

```
C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Reply from 192.168.2.2: bytes=32 time=7ms TTL=128
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 7ms, Average = 1ms
```

6. Расширяю сеть



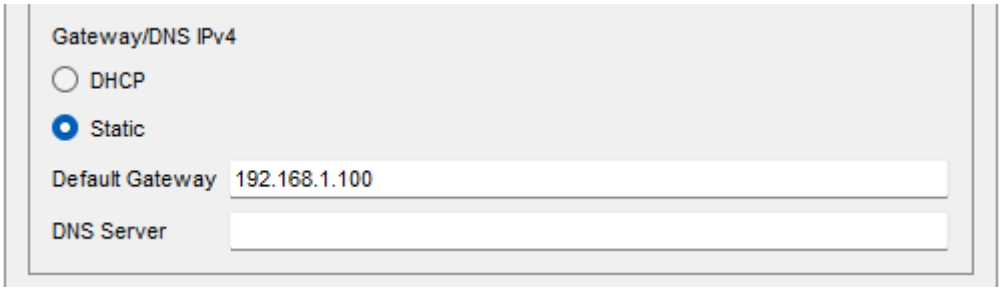
7. Настройка роутера

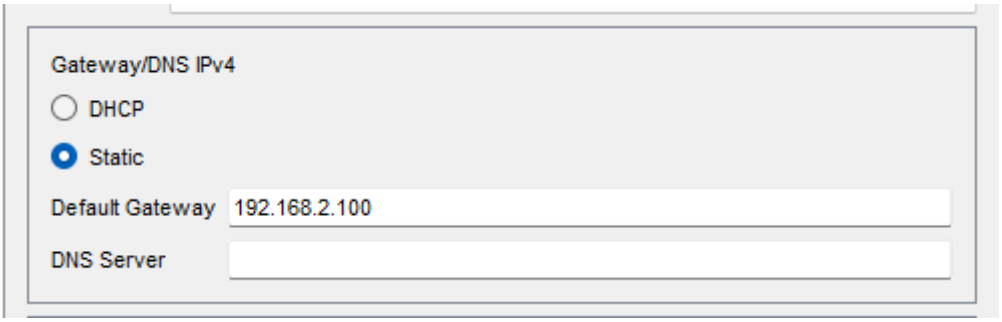
```
Router(config)#int fa0/0
Router(config-if)#ip ad 192.168.1.100 255.255.255.0
Router(config-if)#no sh

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
int fa0/1
%Invalid interface type and number
Router(config)#int fa1/0
Router(config-if)#ip ad 192.168.2.100 255.255.255.0
Router(config-if)#no sh

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
```

8. Донастройка switch 0 и 1

```
Switch(config)#int fa0/3
Switch(config-if)#sw ac vl 10
Switch(config-if)#no sh
Switch(config-if)#exit
Switch(config)#
```

9. Настройка шлюзов для vlan 10 и vlan 20





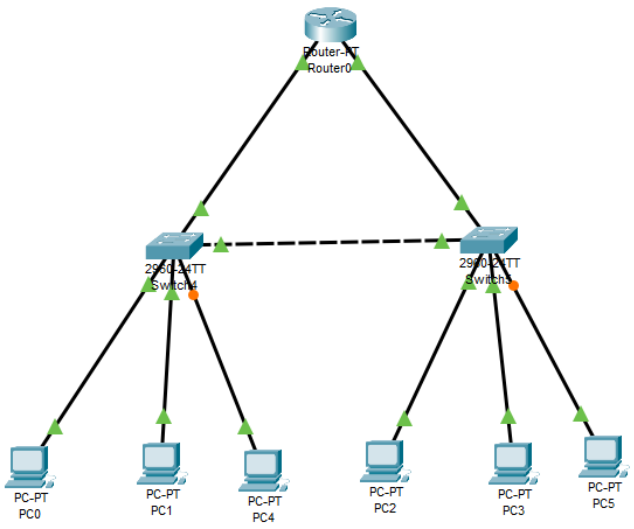
10. Пинг с PC0 на PC3 (Пакет от PC0 (VLAN 10) через Switch0 по trunk-порту поступает на роутер, который перенаправляет его через Switch1 в VLAN 20 к PC3.)

```
C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.2: bytes=32 time<1ms TTL=127
Reply from 192.168.2.2: bytes=32 time<1ms TTL=127
Reply from 192.168.2.2: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

11. Донастройка Switch0 и Switch1 для добавления Vlan 30

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fa0/4
Switch(config-if)#sw ac vl 30
% Access VLAN does not exist. Creating vlan 30
Switch(config-if)#no sh
Switch(config-if)#exit
```

12. Расширенная сеть



13. Проверка работоспособности

```
C:\>ping 192.162.3.3

Pinging 192.162.3.3 with 32 bytes of data:

Reply from 192.162.3.3: bytes=32 time<1ms TTL=128
Reply from 192.162.3.3: bytes=32 time=7ms TTL=128
Reply from 192.162.3.3: bytes=32 time<1ms TTL=128
Reply from 192.162.3.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.162.3.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 7ms, Average = 1ms
```