МИНИСТЕРСТВО ОБРАЗОВАНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ
УЧРЕЖДЕНИЕ ОБРАЗОВАНИЯ
“БРЕСТСКИЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ”
КАФЕДРА ИИТ

ОТЧЁТ

по лабораторной работе №7

«ИЗУЧЕНИЕ ПАКЕТА CISCO PACKET TRACER. НАЧАЛЬНАЯ КОНФИГУРАЦИЯ МАРШРУТИЗАТОРА CISCO»

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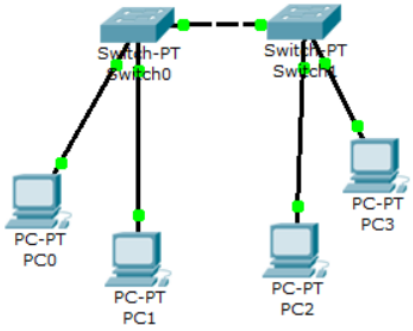
Вариант 1
Ход работы
Часть 1
Практическая часть

1. Добавим на рабочую область программы 2 коммутатора Switch-PT. По умолчанию они имеют имена – Switch0 и Switch1.
2. Добавим на рабочее поле четыре компьютера с именами по умолчанию PC0, PC1, PC2, PC3.
3. Соединим устройства в сеть Ethernet .



4. Сохраним созданную топологию, нажав кнопку Save (в меню File -> Save).
5. Откроем свойства устройства PC0 нажав на его изображение. Перейдем к вкладке Desktop и симулируем работу run нажав Command Prompt.
6. Для конфигурирования компьютера воспользуемся командой ipconfig из командной строки:

```
ipconfig 192.168.1.2 255.255.255.0
```

Таким же путем настроим каждый компьютер.

7. На каждом компъютере посмотрим назначенные адреса командой ipconfig без параметров.

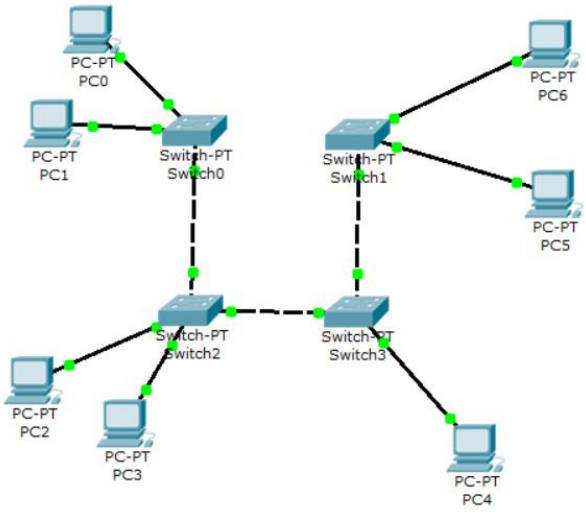
```
PC>ipconfig

IP Address......................: 192.168.1.2
Subnet Mask.....................: 255.255.255.0
Default Gateway.................: 0.0.0.0

PC>ipconfig

IP Address......................: 192.168.1.3
Subnet Mask.....................: 255.255.255.0
Default Gateway.................: 0.0.0.0

PC>ipconfig

IP Address......................: 192.168.1.4
Subnet Mask.....................: 255.255.255.0
Default Gateway.................: 0.0.0.0

PC>ipconfig

IP Address......................: 192.168.1.5
Subnet Mask.....................: 255.255.255.0
Default Gateway.................: 0.0.0.0
```

Если все сделано правильно, можно выполнить ping любого узла из любого узла. Например, с узла PC2.

```
PC>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=147ms TTL=128
Reply from 192.168.1.2: bytes=32 time=96ms TTL=128
Reply from 192.168.1.2: bytes=32 time=93ms TTL=128
Reply from 192.168.1.2: bytes=32 time=95ms 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 = 93ms, Maximum = 147ms, Average = 107ms

PC>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=152ms TTL=128
Reply from 192.168.1.3: bytes=32 time=93ms TTL=128
Reply from 192.168.1.3: bytes=32 time=92ms TTL=128
Reply from 192.168.1.3: bytes=32 time=93ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 92ms, Maximum = 152ms, Average = 107ms

PC>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:

Reply from 192.168.1.5: bytes=32 time=76ms TTL=128
Reply from 192.168.1.5: bytes=32 time=62ms TTL=128
Reply from 192.168.1.5: bytes=32 time=61ms TTL=128
Reply from 192.168.1.5: bytes=32 time=62ms TTL=128

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 61ms, Maximum = 76ms, Average = 65ms
```

Самостоятельная работа

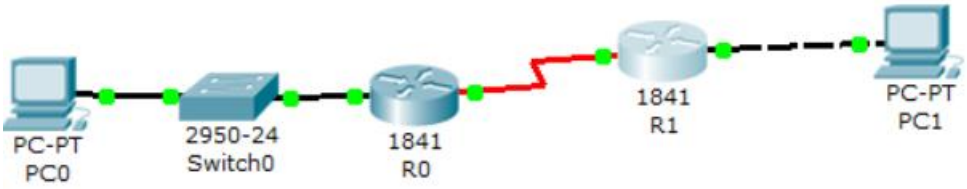
1. Создайте топологию



2. Назначьте компьютерам адреса, согласно варианту (v=1)

Устройство	IP ADDRESS	SUBNET MASK
PC0	1.3.4.6	255.255.255.0
PC1	1.3.4.5	255.255.255.0
PC2	1.3.4.7	255.255.255.0
PC3	1.3.4.9	255.255.255.0
PC4	1.3.4.8	255.255.255.0
PC5	1.3.4.10	255.255.255.0
PC6	1.3.4.11	255.255.255.0

Часть 2



Device	Interface	IP Address	Mask	Default Gateway
R0	Fa0/0	192.168.1.2	255.255.255.0	N/A
	S0/1/0	192.168.2.2	255.255.255.0	N/A
R1	Fa0/0	192.168.3.2	255.255.255.0	N/A
	S0/1/0	192.168.2.3	255.255.255.0	N/A
PC0	N/A	192.168.1.11	255.255.255.0	192.168.1.2
PC1	N/A	192.168.3.11	255.255.255.0	192.168.3.2

Адреса устройств по правилу 192.168.x.y+v

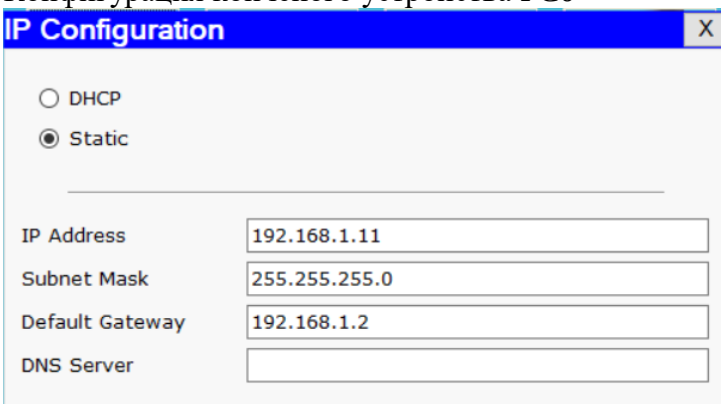
Ход конфигурирования маршрутизаторов и конечных устройств

1. Начальная конфигурация маршрутизатора R0

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R0

R0(config)#no ip domain-lookup

R0(config)#enable secret toor
R0(config)#banner motd &banner&

R0(config)#line console 0
R0(config-line)#password toor
R0(config-line)#login
R0(config-line)#exit

R0(config)#interface fastethernet 0/0
R0(config-if)#ip address 192.168.1.2 255.255.255.0
R0(config-if)#no shutdown
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
state to up

R0(config-if)#interface serial 0/1/0
R0(config-if)#ip address 192.168.2.2 255.255.255.0
R0(config-if)#clock rate 64000
R0(config-if)#no shutdown
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
```

```
R0(config-if)#end
R0#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

2. Конфигурация R1 производится аналогично конфигурации R0 в соответствии с таблицей сетевых адресов.
3. Конфигурация конченого устройства PC0



4. Конфигурация PC1 производится аналогично конфигурации PC0

Ход и результаты проверки и тестирования сети

```
R0#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

C    192.168.1.0/24 is directly connected, FastEthernet0/0
C    192.168.2.0/24 is directly connected, Serial0/1/0

R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

C    192.168.2.0/24 is directly connected, Serial0/1/0
C    192.168.3.0/24 is directly connected, FastEthernet0/0
```

```
R0#show ip interface brief
Interface              IP-Address      OK?   Method Status                Protocol

FastEthernet0/0        192.168.1.2     YES manual up                    up
FastEthernet0/1        unassigned      YES unset  administratively down down
Serial0/1/0            192.168.2.2     YES manual up                    up
Serial0/1/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down

R1#show ip interface brief
Interface              IP-Address      OK?   Method Status                Protocol

FastEthernet0/0        192.168.3.2     YES manual up                    up
FastEthernet0/1        unassigned      YES unset  administratively down down
Serial0/1/0            192.168.2.3     YES manual up                    up
Serial0/1/1            unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down

PC0>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=113ms TTL=255
Reply from 192.168.1.2: bytes=32 time=46ms TTL=255
Reply from 192.168.1.2: bytes=32 time=64ms TTL=255
Reply from 192.168.1.2: bytes=32 time=46ms TTL=255

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 46ms, Maximum = 113ms, Average = 67ms

PC1>ping 192.168.3.2

Pinging 192.168.3.2 with 32 bytes of data:

Reply from 192.168.3.2: bytes=32 time=51ms TTL=255
Reply from 192.168.3.2: bytes=32 time=31ms TTL=255
Reply from 192.168.3.2: bytes=32 time=30ms TTL=255
Reply from 192.168.3.2: bytes=32 time=17ms TTL=255

Ping statistics for 192.168.3.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 17ms, Maximum = 51ms, Average = 32ms

PC1>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:

Reply from 192.168.3.2: Destination host unreachable.
Reply from 192.168.3.2: Destination host unreachable.
Reply from 192.168.3.2: Destination host unreachable.
Reply from 192.168.3.2: Destination host unreachable.

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

С устройств можно пропинговать Fastethernet интерфейсы маршрутизаторов, с PC1 пропинговать PC0 невозможно.