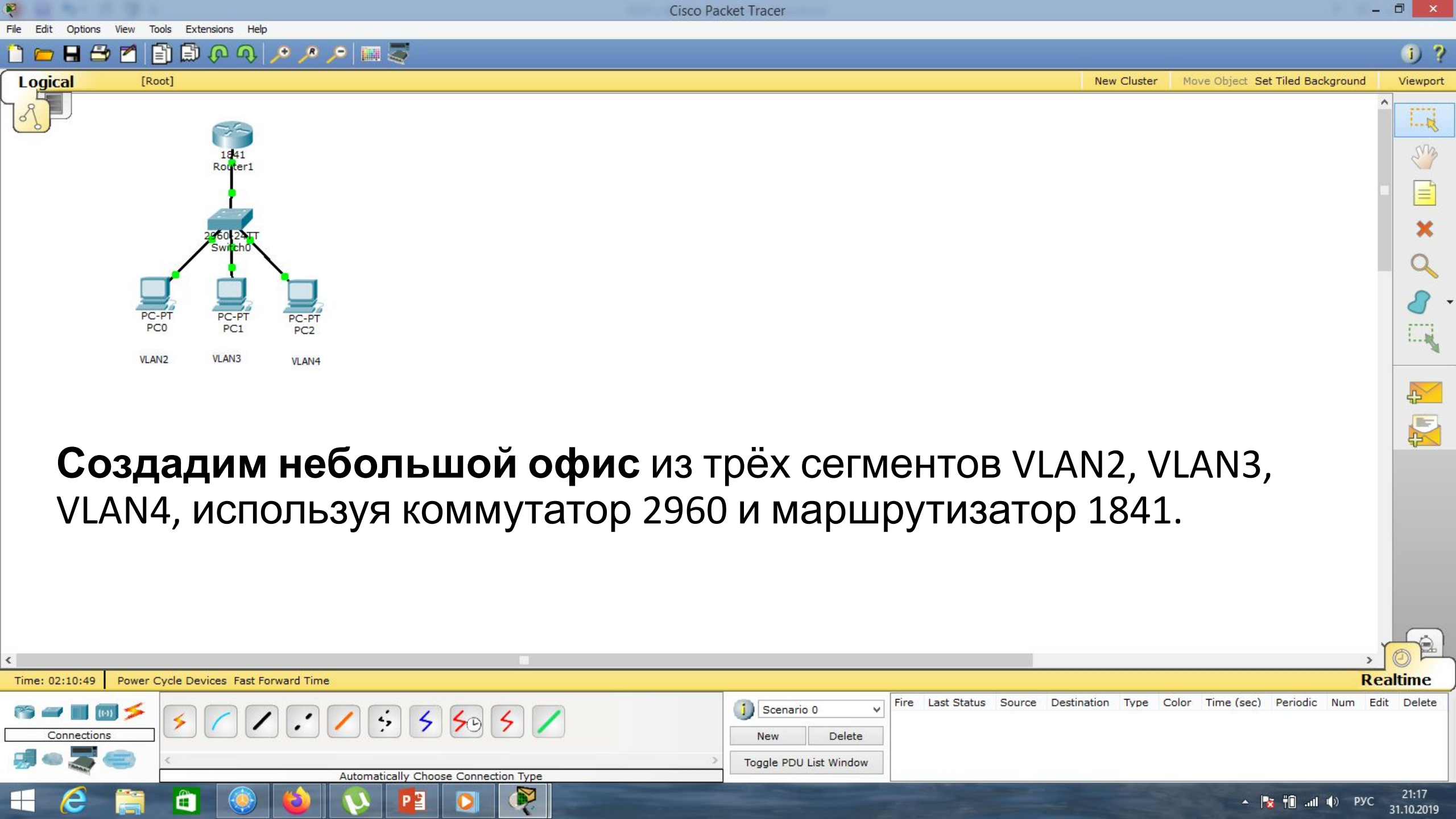
МДК.01.01

# Организация, принципы построения и функционирования компьютерных сетей

**3-курс**

## Практические занятия

Занятие 06

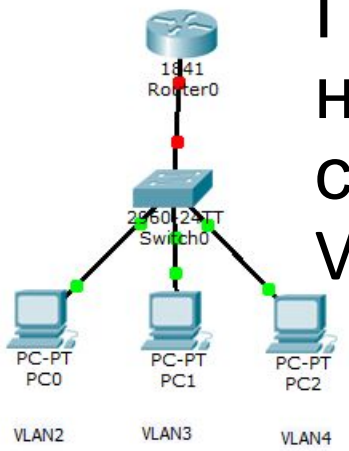



**Создадим небольшой офис** из трёх сегментов VLAN2, VLAN3, VLAN4, используя коммутатор 2960 и маршрутизатор 1841.

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




Проведём уже знакомые нам операции по созданию трёх сегментов VLAN2, VLAN3, VLAN4.

Настроим коммутатор.

Switch0

Physical Config CLI

IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state t
o up

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state t
o up


Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name VLAN2
Switch(config-vlan)#exit
Switch(config)#vlan 3
Switch(config-vlan)#name VLAN3
Switch(config-vlan)#exit
Switch(config)#vlan 4
Switch(config-vlan)#name VLAN4
Switch(config-vlan)#exit
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#
```

Copy Paste

В режиме глобального конфигурирования набираем: «vlan 2», «name VLAN2», «exit», «vlan 3», «name VLAN3», «exit», «vlan 4», «name VLAN4», «exit», «end».

Time: 00:21:43 Power Cycle Devices Fast Forward Time Realtime

Connections

Automatically Choose Connection Type

Scenario 0 New Delete Toggle PDU List Window

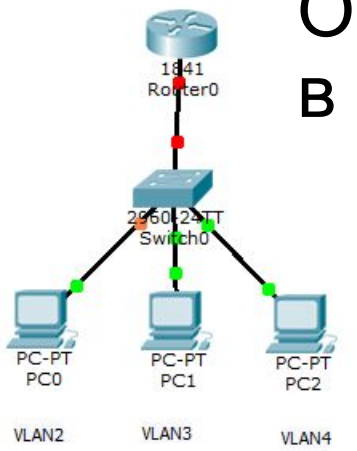
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 19:28 31.10.2019

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




# Определяем компьютеры в нужные сегменты.

Компьютеры подсоединены к портам: fastEthernet 0/1, fastEthernet 0/2, fastEthernet 0/3.

Switch0

Physical Config CLI

IOS Command Line Interface

```
Switch>
Switch>
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fa
Switch(config)#int fastEthernet 0/1
Switch(config-if)#swi
Switch(config-if)#switchport mode access
Switch(config-if)#swi
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#
```

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В режиме глобального конфигурирования набираем: «int fastEthernet 0/1», «switchport mode access», «switchport access vlan 2», «exit».

Time: 00:36:01 Power Cycle Devices Fast Forward Time Realtime

Connections

Automatically Choose Connection Type

Scenario 0 New Delete Toggle PDU List Window

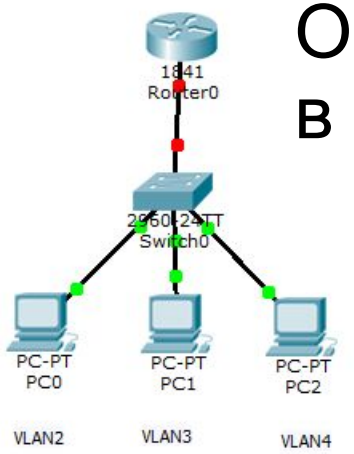
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 19:42 31.10.2019

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




# Определяем компьютеры в нужные сегменты.

Switch0

Physical Config CLI

IOS Command Line Interface

```
Switch>
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fa
Switch(config)#int fastEthernet 0/1
Switch(config-if)#swi
Switch(config-if)#switchport mode access
Switch(config-if)#swi
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fastEthernet 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#int fastEthernet 0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 4
Switch(config-if)#exit
Switch(config)#
```

Copy Paste

В режиме глобального конфигурирования набираем: «int fastEthernet 0/2», «switchport mode access», «switchport access vlan 3», «exit», «int fastEthernet 0/3», «switchport mode access», «switchport access vlan 4», «exit».

Time: 00:43:13 Power Cycle Devices Fast Forward Time Realtime

Connections

Automatically Choose Connection Type

Scenario 0 New Delete Toggle PDU List Window

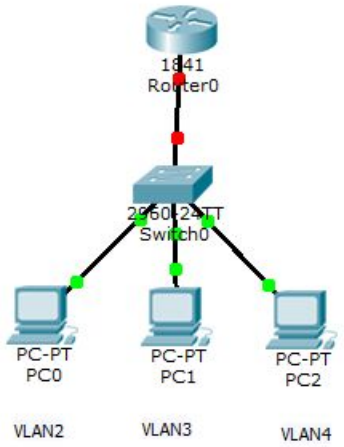
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 19:50 31.10.2019

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




# Настроим trunk-порт.

Switch0

Physical Config CLI

IOS Command Line Interface

```
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fastEthernet 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#int fastEthernet 0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 4
Switch(config-if)#exit
Switch(config)#int fastEthernet 0/4
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk allowed vlan 2,3,4
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#wr
Switch#write mem
Switch#write memory
Building configuration...
[OK]
Switch#
```

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В режиме глобального конфигурирования набираем: «int fastEthernet 0/4», «switchport mode trunk», «switchport trunk allowed vlan 2,3,4», «end», «write memory» (сохранимся).

Time: 00:50:31 | Power Cycle Devices Fast Forward Time

Realtime

Connections

Automatically Choose Connection Type

Scenario 0 New Delete Toggle PDU List Window

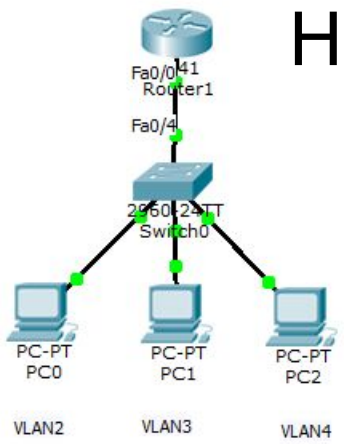
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 19:57 31.10.2019

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




# Настроим маршрутизатор.

Router1

Physical Config CLI

IOS Command Line Interface

```
Router>
Router>
Router>
Router>
Router>
Router>
Router>
Router>
Router>
Router>
Router>
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa 0/0
Router(config-if)#no shut
Router(config-if)#no shutdown

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t
o up

Router(config-if)#exit
Router(config)#
```

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В первую очередь нужно «поднять» порт fastEthernet 0/0.

В режиме глобального конфигурирования набираем: «int fastEthernet 0/0» (или «int fa 0/0»), «no shutdown», «exit».

Time: 01:06:44 Power Cycle Devices Fast Forward Time Realtime

Connections

Automatically Choose Connection Type

Scenario 0 New Delete Toggle PDU List Window

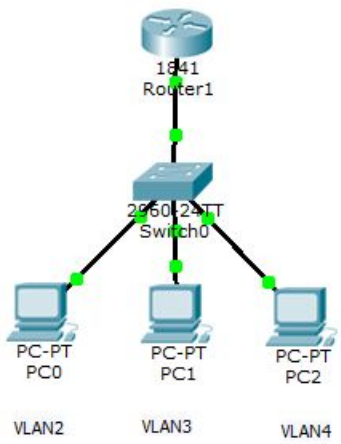
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 20:13 31.10.2019

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




Т.к. на маршрутизатор приходит три виртуальные сети (VLAN2, VLAN3, VLAN4), необходимо создать sub-интерфейсы (подинтерфейсы): «Interface range fa0/1».

Router1

Physical Config CLI

IOS Command Line Interface

```
Router(config)#
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#cjnf t
          ^
% Invalid input detected at '^' marker.

Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa 0/0.2
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.2, changed state
 to up

Router(config-subif)#enc
Router(config-subif)#encapsulation do
Router(config-subif)#encapsulation dot1Q 2
Router(config-subif)#ip add
Router(config-subif)#ip address 192.168.2.1 255.255.255.0
Router(config-subif)#no shut
Router(config-subif)#no shutdown
Router(config-subif)#exit
Router(config)#
```

Copy Paste

В режиме глобального конфигурирования набираем: «int fastEthernet 0/0.2», «encapsulation dot1Q 2», «ip address 192.168.2.1 255.255.255.0», «no shutdown», «exit».

Time: 01:21:02 Power Cycle Devices Fast Forward Time Realtime

Connections

Automatically Choose Connection Type

Scenario 0 New Delete Toggle PDU List Window

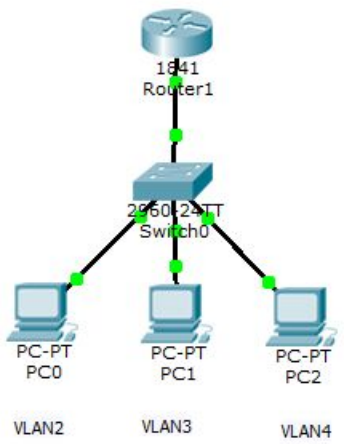
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 20:27 31.10.2019

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




Тоже самое делаем для VLAN3.

Router1

Physical Config CLI

IOS Command Line Interface

```
Router(config)#int fa 0/0.2
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.2, changed state
 to up

Router(config-subif)#enc
Router(config-subif)#encapsulation do
Router(config-subif)#encapsulation dot1Q 2
Router(config-subif)#ip add
Router(config-subif)#ip address 192.168.2.1 255.255.255.0
Router(config-subif)#no shut
Router(config-subif)#no shutdown
Router(config-subif)#exit
Router(config)#int fa 0/0.3
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.3, changed state
 to up

Router(config-subif)#encapsulation dot1Q 3
Router(config-subif)#ip address 192.168.3.1 255.255.255.0
Router(config-subif)#no shutdown
Router(config-subif)#exit
```

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В режиме глобального конфигурирования набираем: «int fastEthernet 0/0.3», «encapsulation dot1Q 3», «ip address 192.168.3.1 255.255.255.0», «no shutdown», «exit».

Time: 01:31:19 Power Cycle Devices Fast Forward Time Realtime

Connections

Automatically Choose Connection Type

Scenario 0 New Delete Toggle PDU List Window

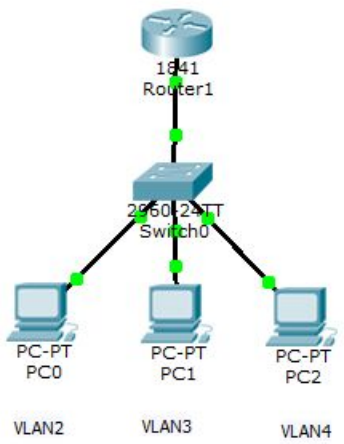
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 20:38 31.10.2019

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




Тоже самое делаем для VLAN4.

Router1

Physical Config CLI

IOS Command Line Interface

```
Router(config-subif)#ip address 192.168.3.1 255.255.255.0
Router(config-subif)#no shutdown
Router(config-subif)#exit
Router(config)#int fa 0/0.
                         ^
% Invalid input detected at '^' marker.

Router(config)#
Router(config)#int fa 0/0.4
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.4, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.4, changed state
 to up

Router(config-subif)#encapsulation dot1Q 4
Router(config-subif)#ip address 192.168.4.1 255.255.255.0
Router(config-subif)#no shutdown
Router(config-subif)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr mem
Building configuration...
[OK]
Router#
```

Copy Paste

В режиме глобального конфигурирования набираем: «int fastEthernet 0/0.4», «encapsulation dot1Q 4», «ip address 192.168.4.1 255.255.255.0», «no shutdown», «end», «wr mem».

Time: 01:38:13 Power Cycle Devices Fast Forward Time Realtime

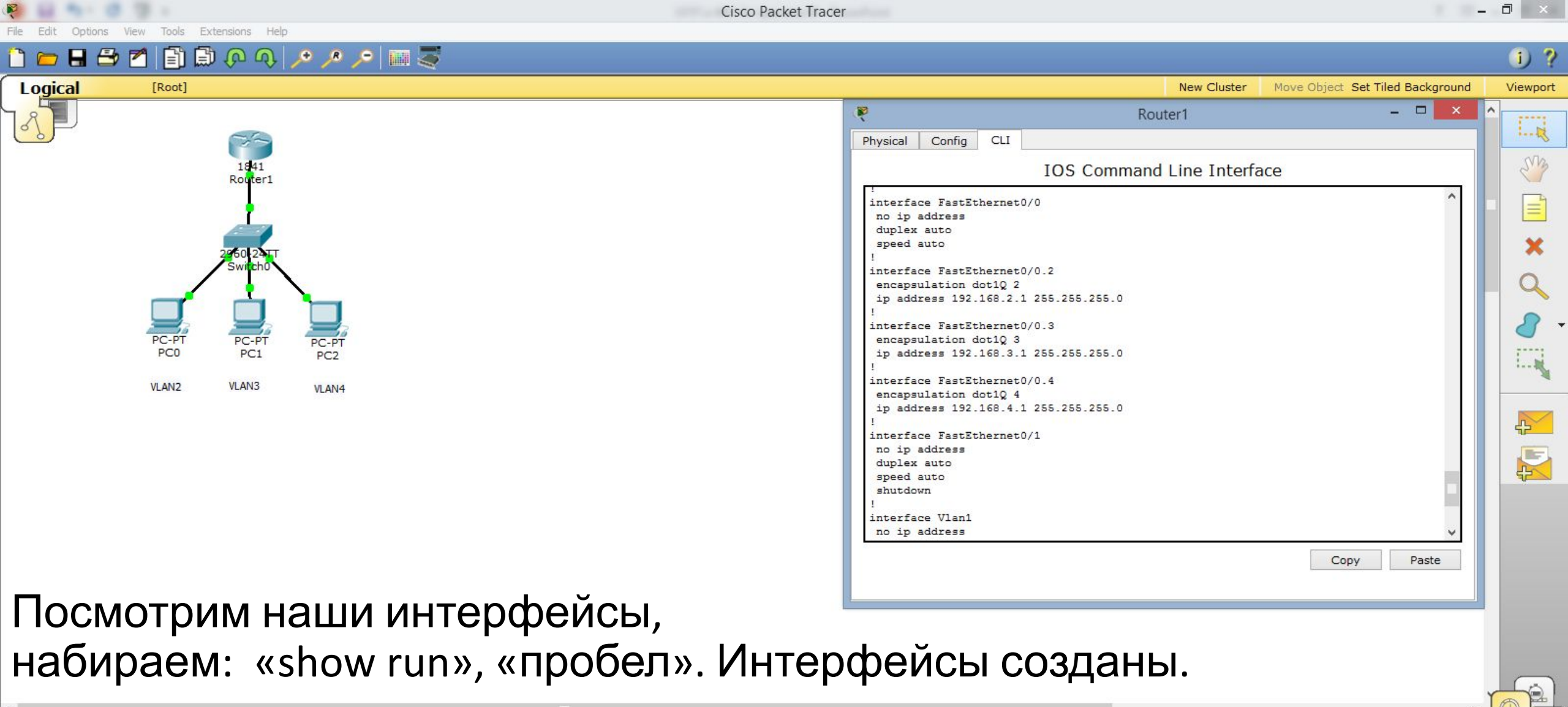
Connections

Automatically Choose Connection Type

Scenario 0 New Delete Toggle PDU List Window

Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 20:45 31.10.2019

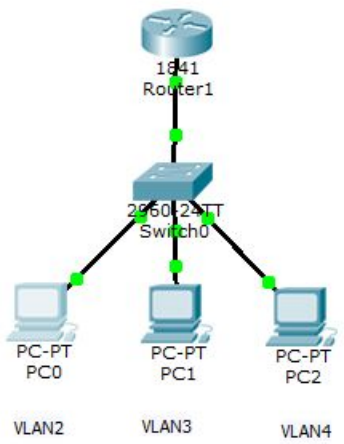



Посмотрим наши интерфейсы,
набираем: «show run», «пробел». Интерфейсы созданы.

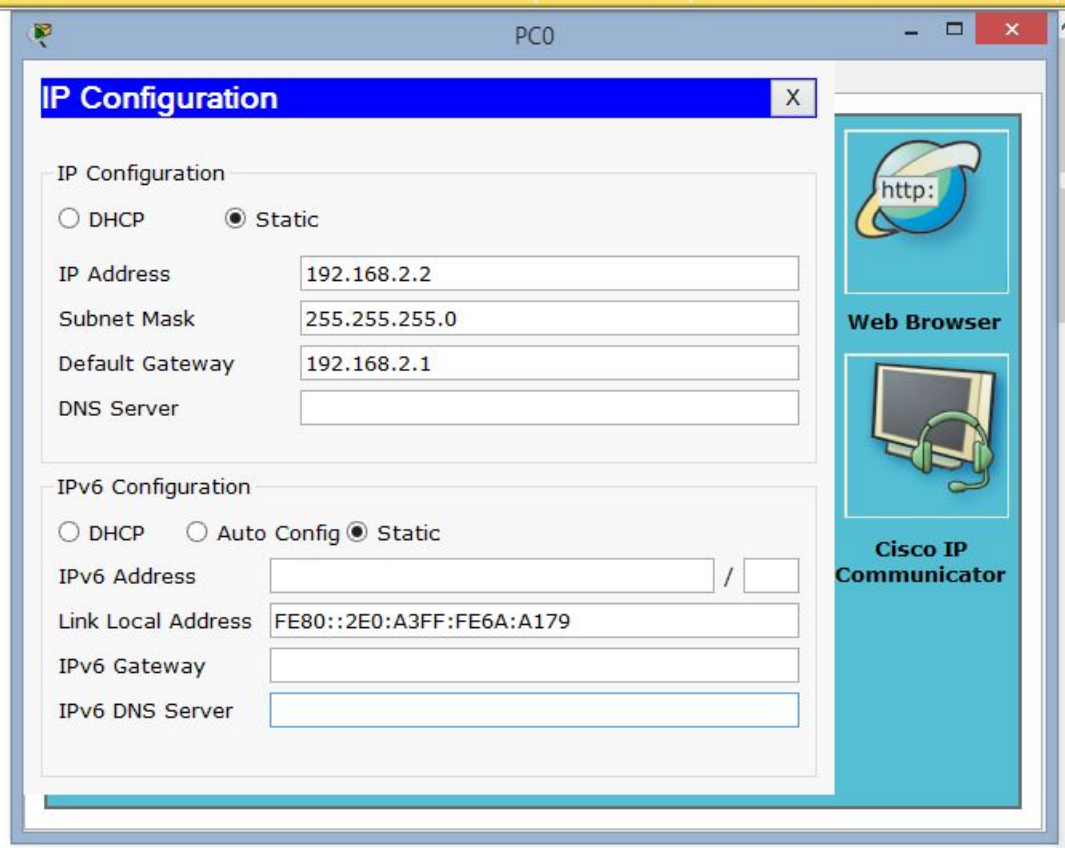
Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




# Настроим компьютер PC0.




Зададим ip address: 192.168.2.2, маску: 255.255.255.0, шлюз: 192.168.2.1.

Time: 01:49:32 | Power Cycle Devices Fast Forward Time

Realtime

Connections

Automatically Choose Connection Type

Scenario 0

New Delete

Toggle PDU List Window

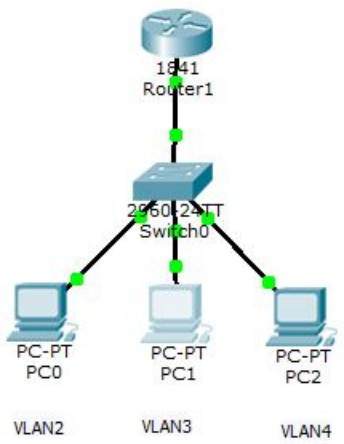
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

РУС 20:56 31.10.2019

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




# Настроим компьютер PC1.

PC1

IP Configuration X

IP Configuration

DHCP Static

IP Address 192.168.3.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.3.1

DNS Server

IPv6 Configuration

DHCP Auto Config Static

IPv6 Address /

Link Local Address FE80::2E0:B0FF:FE94:BD82

IPv6 Gateway

IPv6 DNS Server

Web Browser

Cisco IP Communicator

Зададим ip address: 192.168.3.2, маску: 255.255.255.0, шлюз: 192.168.3.1.

Time: 01:54:46 Power Cycle Devices Fast Forward Time Realtime

Connections

Automatically Choose Connection Type

Scenario 0 New Delete Toggle PDU List Window

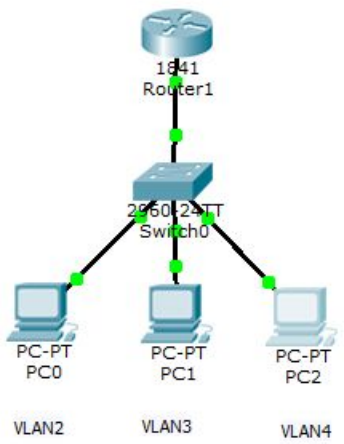
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

РУС 21:01 31.10.2019

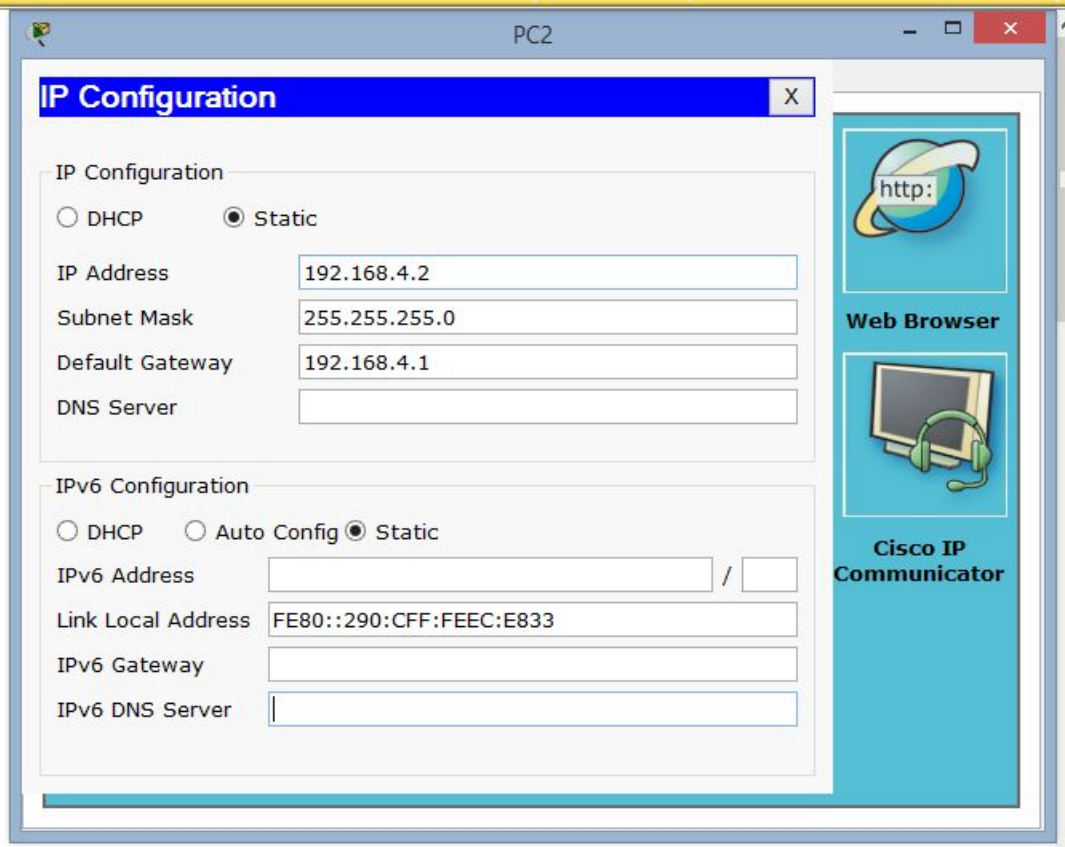
Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




# Настроим компьютер PC2.




Зададим ip address: 192.168.4.2, маску: 255.255.255.0, шлюз: 192.168.4.1.

Time: 01:57:02 | Power Cycle Devices Fast Forward Time

Realtime

Connections

Automatically Choose Connection Type

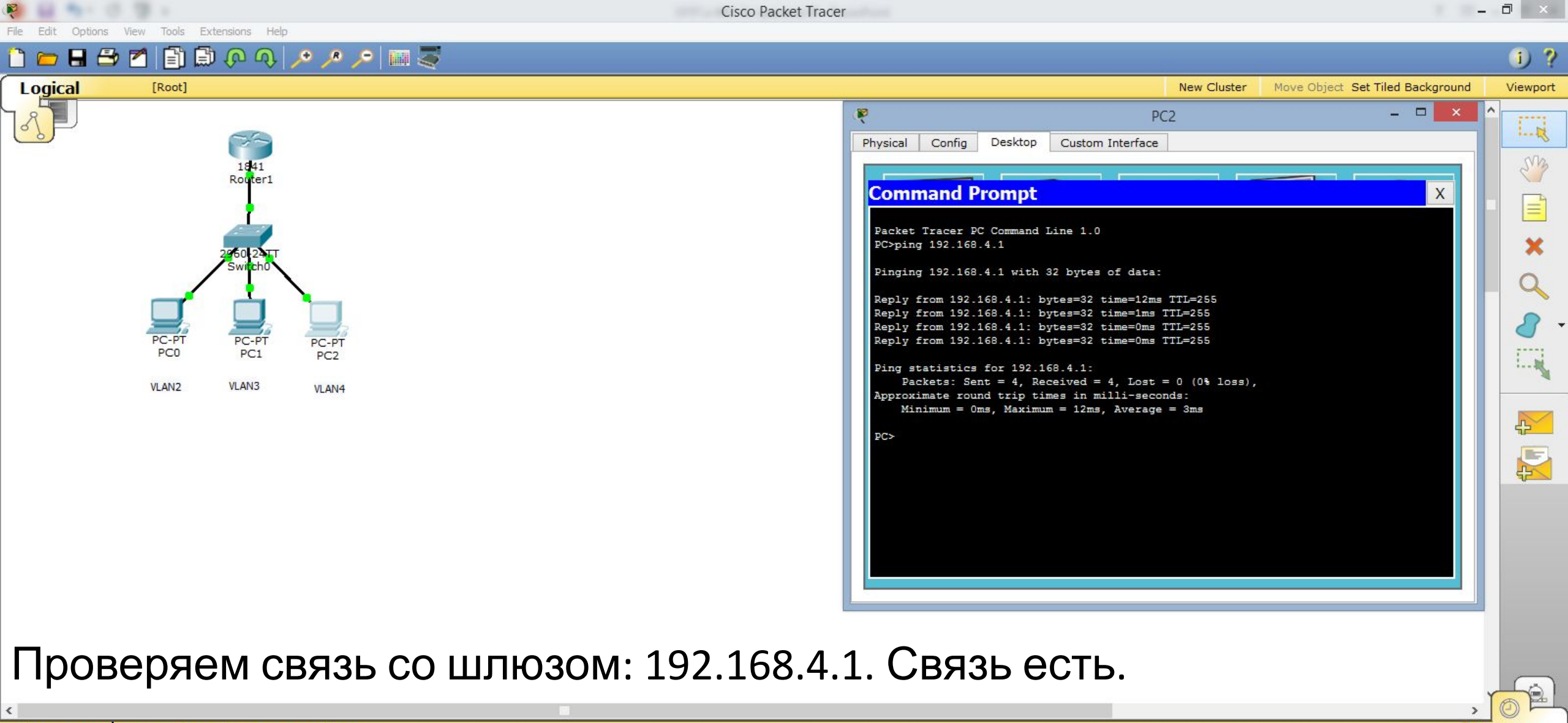
Scenario 0

New Delete

Toggle PDU List Window

Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

РУС 21:03 31.10.2019



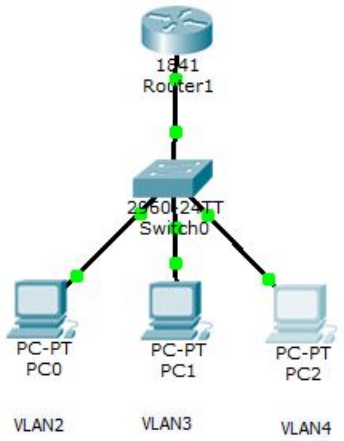

Проверяем связь со шлюзом: 192.168.4.1. Связь есть.

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root]

New Cluster Move Object Set Tiled Background Viewport




PC2

Physical Config Desktop Custom Interface

Command Prompt

```
Pinging 192.168.4.1 with 32 bytes of data:

Reply from 192.168.4.1: bytes=32 time=12ms TTL=255
Reply from 192.168.4.1: bytes=32 time=1ms TTL=255
Reply from 192.168.4.1: bytes=32 time=0ms TTL=255
Reply from 192.168.4.1: bytes=32 time=0ms TTL=255

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 = 12ms, Average = 3ms

PC>ping 192.168.3.2

Pinging 192.168.3.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.3.2: bytes=32 time=0ms TTL=127
Reply from 192.168.3.2: bytes=32 time=0ms TTL=127
Reply from 192.168.3.2: bytes=32 time=1ms TTL=127

Ping statistics for 192.168.3.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>
```

# Проверяем связь с соседним сегментом: 192.168.3.2. Связь есть.

Time: 02:07:20 Power Cycle Devices Fast Forward Time

Realtime

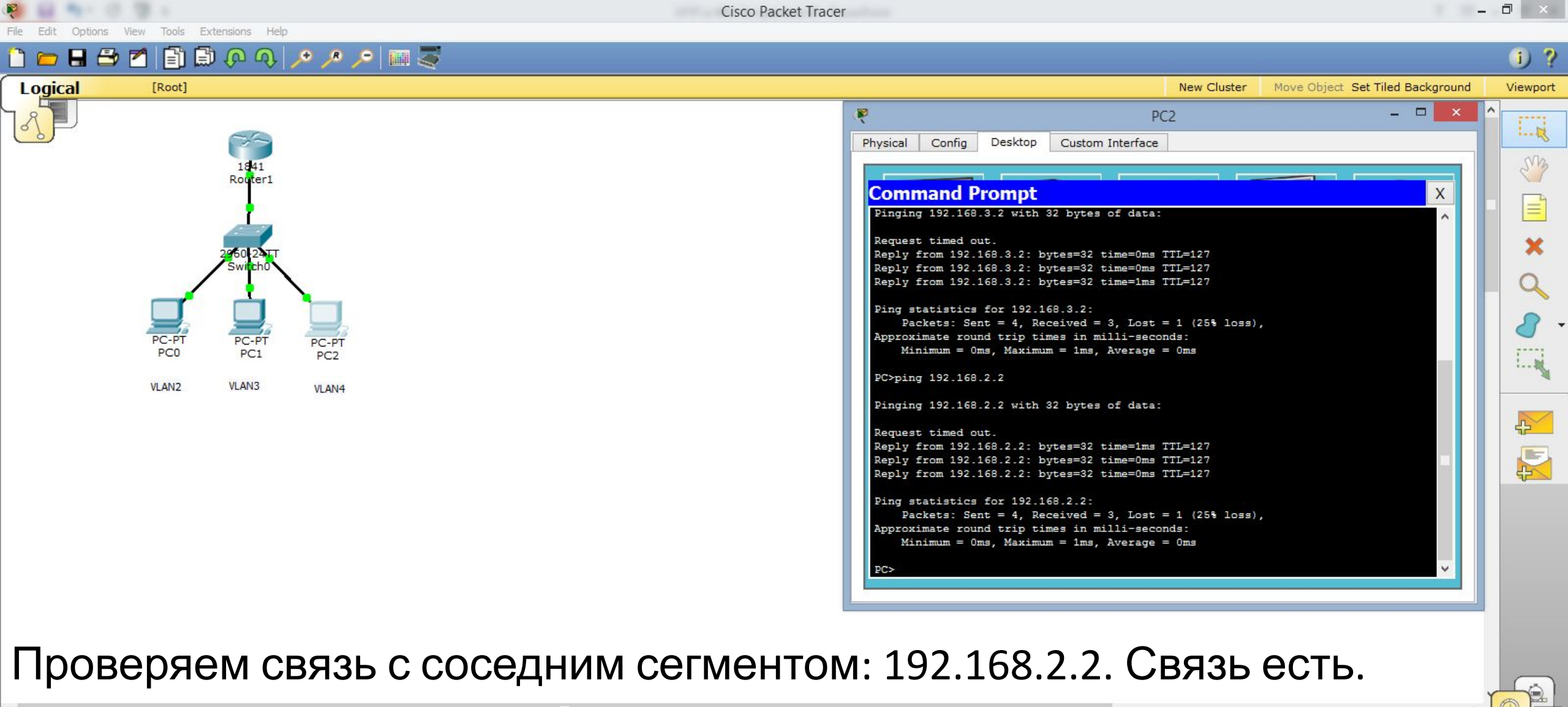
Connections

Automatically Choose Connection Type

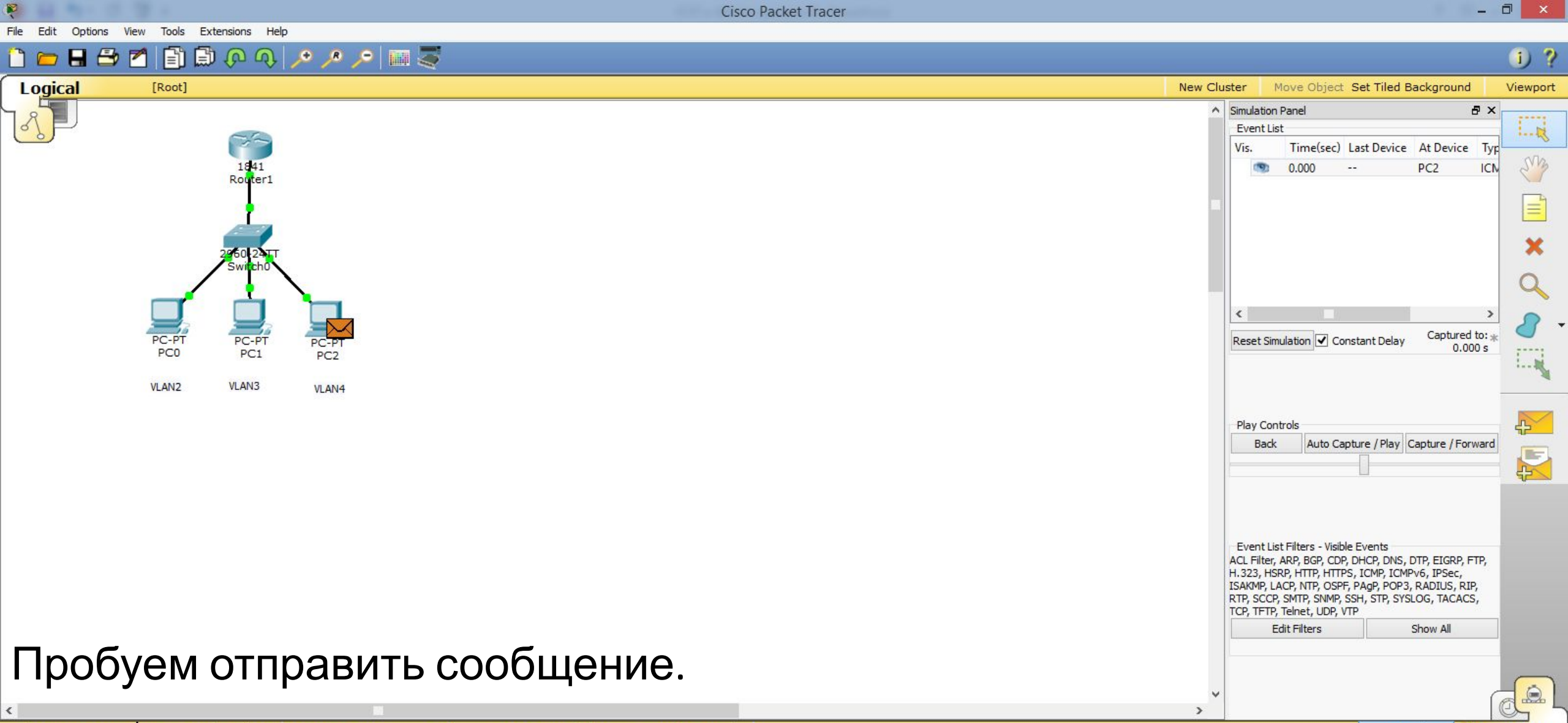
Scenario 0 New Delete Toggle PDU List Window

| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete |
|---|---|---|---|---|---|---|---|---|---|---|

РУС 21:14 31.10.2019

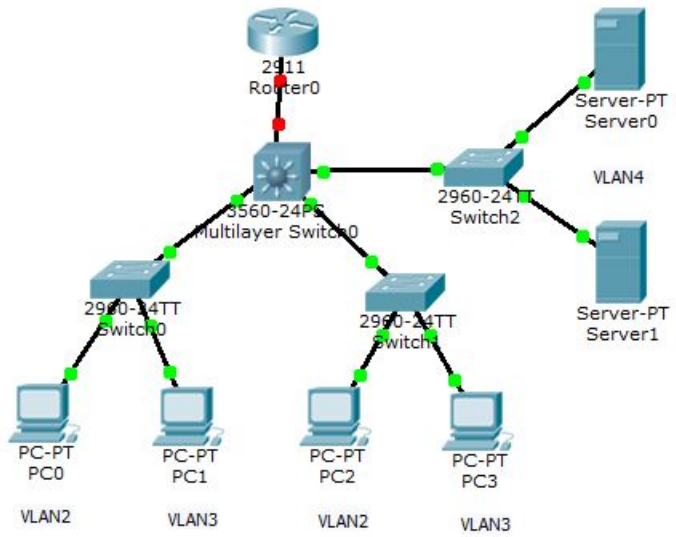



Проверяем связь с соседним сегментом: 192.168.2.2. Связь есть.




Пробуем отправить сообщение.


Сообщение сначала отправляется на маршрутизатор, а затем приходит адресату.




Рассмотрим более сложный пример.

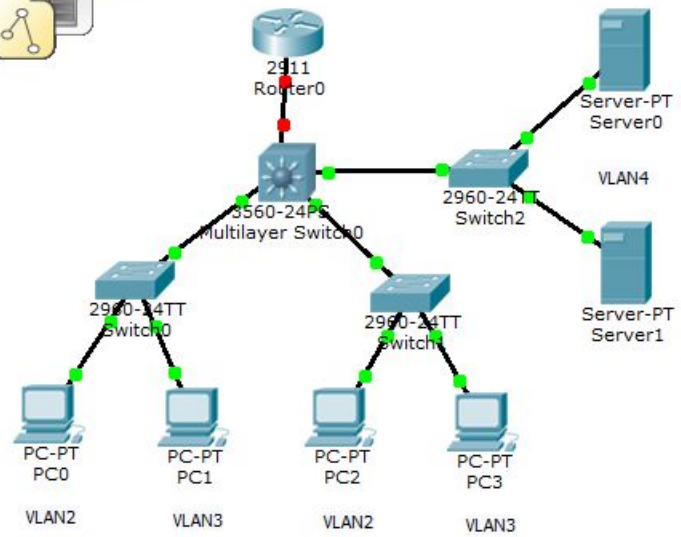
Пусть у нас имеется три коммутатора 2-го уровня (2960), четыре компьютера, два выделенных сервера (Server-PT), коммутатор третьего уровня (3560) и маршрутизатор (2911).

Пусть компьютеры PC0 и PC2 принадлежат VLAN2, компьютеры PC1 и PC3 принадлежат VLAN3, а серверы – VLAN4.

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




Проведём уже знакомые нам операции по созданию двух сегментов VLAN2, VLAN3.

Switch0

Physical Config CLI

IOS Command Line Interface

```
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name VLAN2
Switch(config-vlan)#exit
Switch(config)#vlan 3
Switch(config-vlan)#name VLAN3
Switch(config-vlan)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fa 0/1
Switch(config-if)#sw
Switch(config-if)#switchport mode access
Switch(config-if)#sw
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#int fa 0/2
Switch(config-if)#sw
Switch(config-if)#switchport mode access
Switch(config-if)#sw
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#
```

Copy Paste

Настроим коммутатор Switch0.

В режиме глобального конфигурирования набираем: «vlan 2», «name VLAN2», «exit», «vlan 3», «name VLAN3», «exit», «int fa 0/1», «switchport mode access», «switchport access vlan 2», «exit», «int fa 0/2», «switchport mode access», «switchport access vlan 3», «exit».

Viewport

Time: 00:31:01 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0 New Delete Toggle PDU List Window

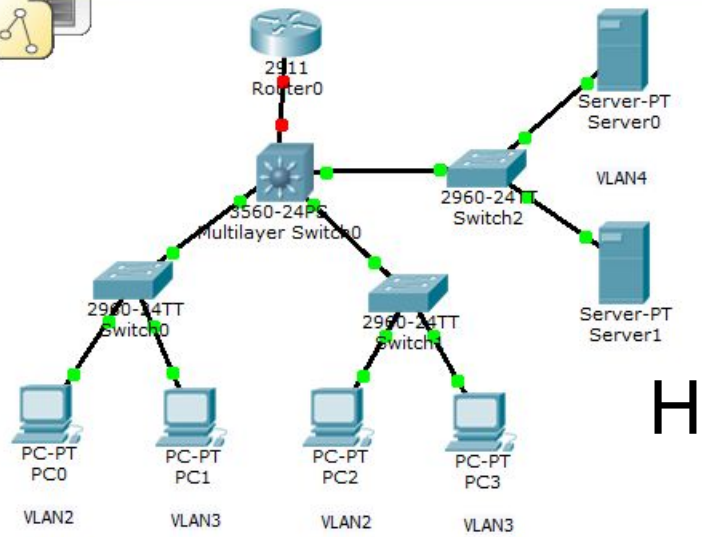
| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete |
|---|---|---|---|---|---|---|---|---|---|---|

ENG 22:03 31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




Настроим trunk-порт.

Switch0

Physical Config CLI

IOS Command Line Interface

```
Switch(config-if)#sw
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state t
o down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state t
o up

Switch(config-if)#sw
Switch(config-if)#switchport trunk allowd vlan 2,3
                                  ^
% Invalid input detected at '^' marker.

Switch(config-if)#sw
Switch(config-if)#switchport trunk all
Switch(config-if)#switchport trunk allowed vlan 2,3
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#wr mem
Building configuration...
[OK]
Switch#
```

Copy Paste

Viewport

В режиме глобального конфигурирования набираем: «int fastEthernet 0/3»,
«switchport mode trunk»,
«switchport trunk allowed vlan 2,3», «end», «write memory» (сохранимся).

Time: 00:44:52 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0 New Delete Toggle PDU List Window

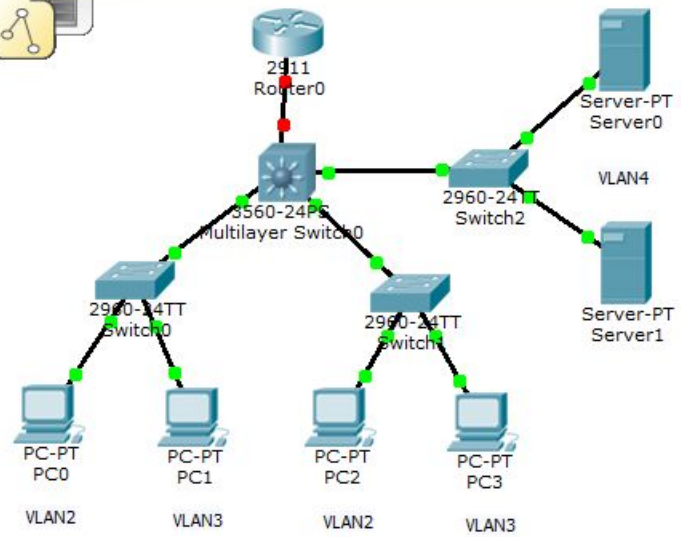
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 22:17 31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




Switch0

Physical Config CLI

IOS Command Line Interface

```
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch
!
!
!
!
spanning-tree mode pvst
!
interface FastEthernet0/1
 switchport access vlan 2
 switchport mode access
!
interface FastEthernet0/2
 switchport access vlan 3
 switchport mode access
!
interface FastEthernet0/3
 switchport trunk allowed vlan 2-3
 switchport mode trunk
!
interface FastEthernet0/4
!
interface FastEthernet0/5
!
```

Copy Paste

Viewport

Посмотрим наши интерфейсы,
набираем: «show run», «пробел». Интерфейсы созданы.

Time: 00:47:20 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

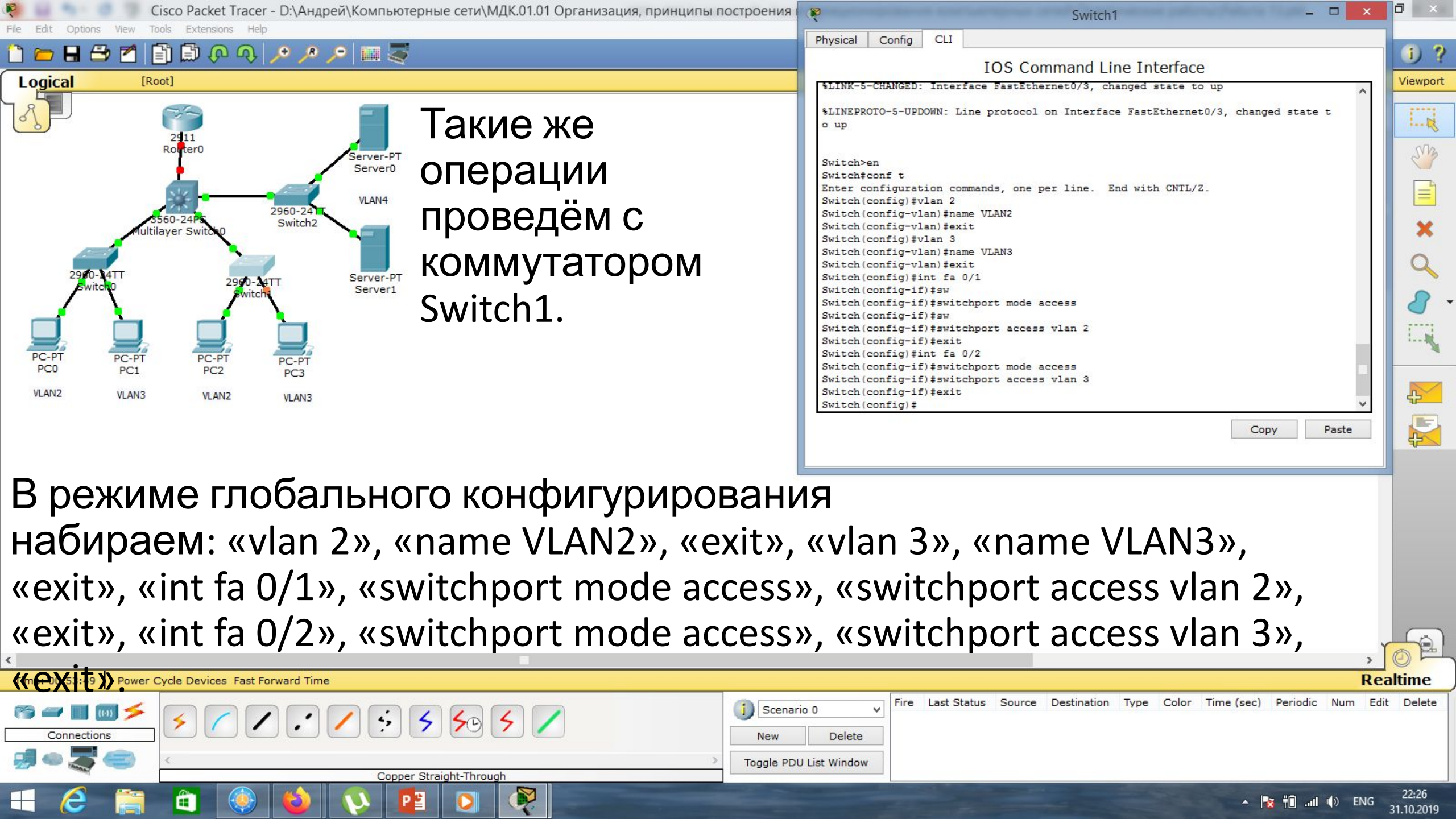
Scenario 0

New Delete

Toggle PDU List Window

| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete |
|---|---|---|---|---|---|---|---|---|---|---|

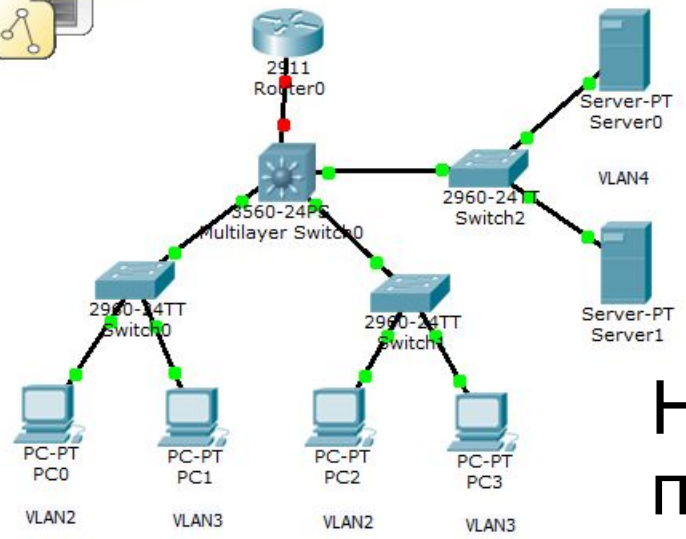
ENG 22:19 31.10.2019


Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения
File Edit Options View Tools Extensions Help
Logical [Root]
2911 Router0
Server-PT Server0
VLAN4
2960-24TT Switch2
3560-24PS Multilayer Switch0
Server-PT Server1
2960-24TT Switch0
2960-24TT Switch1
PC-PT PC0
PC-PT PC1
PC-PT PC2
PC-PT PC3
VLAN2
VLAN3
VLAN2
VLAN3
Такие же операции проведём с коммутатором Switch1.
Switch1
Physical Config CLI
IOS Command Line Interface
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name VLAN2
Switch(config-vlan)#exit
Switch(config)#vlan 3
Switch(config-vlan)#name VLAN3
Switch(config-vlan)#exit
Switch(config)#int fa 0/1
Switch(config-if)#sw
Switch(config-if)#switchport mode access
Switch(config-if)#sw
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#int fa 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#
Copy Paste
Viewport
В режиме глобального конфигурирования набираем: «vlan 2», «name VLAN2», «exit», «vlan 3», «name VLAN3», «exit», «int fa 0/1», «switchport mode access», «switchport access vlan 2», «exit», «int fa 0/2», «switchport mode access», «switchport access vlan 3», «exit».
Power Cycle Devices Fast Forward Time
Realtime
Connections
Copper Straight-Through
Scenario 0
New Delete
Toggle PDU List Window
Fire Last Status Source Destination Type Color Time (sec) Periodic Num Edit Delete
ENG
22:26
31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




Настроим trunk-порт.

Switch1

Physical Config CLI

IOS Command Line Interface

```
Switch(config-if)#exit
Switch(config)#int fa 0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#int fa 0/3
Switch(config-if)#sw
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state t
o down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state t
o up

Switch(config-if)#sw
Switch(config-if)#switchport trunk allowed vlan 2,3
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#wr mem
Building configuration...
[OK]
Switch#
```

Copy Paste

Viewport

В режиме глобального конфигурирования набираем: «int fastEthernet 0/3», «switchport mode trunk», «switchport trunk allowed vlan 2,3», «end», «write memory» (сохранимся).

Time: 00:58:40 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0 New Delete Toggle PDU List Window

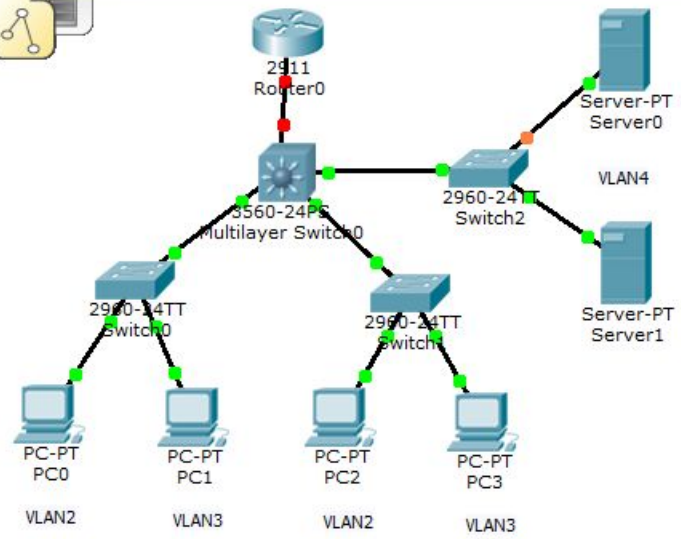
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 22:30 31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




Такие же операции проведём с коммутатором Switch2.

Switch2

Physical Config CLI

IOS Command Line Interface

```
Switch#
Switch#
Switch#
Switch#
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 4
Switch(config-vlan)#name VLAN4
Switch(config-vlan)#exit
Switch(config)#int fa 0/1,2
                      ^
% Invalid input detected at '^' marker.

Switch(config)#int fa 0/1
Switch(config-if)#sw
Switch(config-if)#switchport mode access
Switch(config-if)#sw
Switch(config-if)#switchport access vlan 4
Switch(config-if)#exit
Switch(config)#int fa 0/2
Switch(config-if)#sw
Switch(config-if)#switchport mode access
Switch(config-if)#sw
Switch(config-if)#switchport access vlan 4
Switch(config-if)#exit
Switch(config)#
```

Copy Paste

Viewport

В режиме глобального конфигурирования набираем: «vlan 4», «name VLAN4», «exit», «int fa 0/1», «switchport mode access», «switchport access vlan 4», «exit», «int fa 0/2», «switchport mode access», «switchport access vlan 4», «exit».

Time: 01:10:45 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0 New Delete Toggle PDU List Window

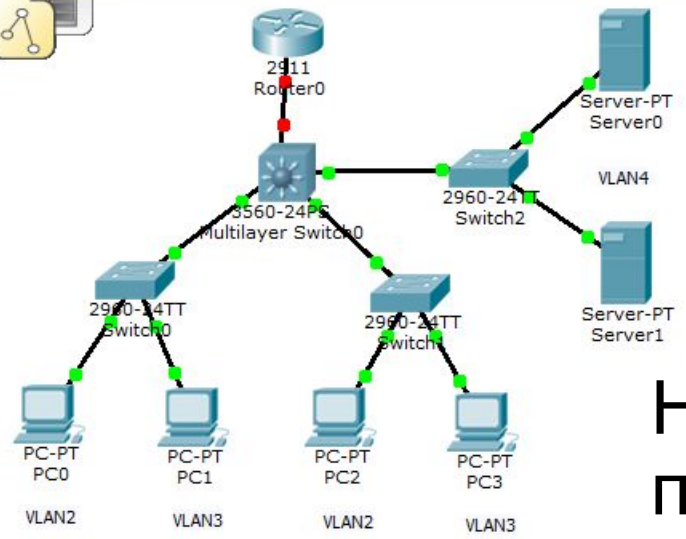
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 22:43 31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




Настроим trunk-порт.

Switch2

Physical Config CLI

IOS Command Line Interface

```
Switch(config-if)#sw
Switch(config-if)#switchport mode access
Switch(config-if)#sw
Switch(config-if)#switchport access vlan 4
Switch(config-if)#exit
Switch(config)#int fa 0/3
Switch(config-if)#sw
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state t
o down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state t
o up

Switch(config-if)#sw
Switch(config-if)#switchport trunk allowed vlan 4
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#wr mem
Building configuration...
[OK]
Switch#
```

Copy Paste

В режиме глобального конфигурирования набираем: «int fastEthernet 0/3», «switchport mode trunk», «switchport trunk allowed vlan 4», «end», «write memory» (сохранимся).

Viewport

Time: 01:15:18 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0 New Delete Toggle PDU List Window

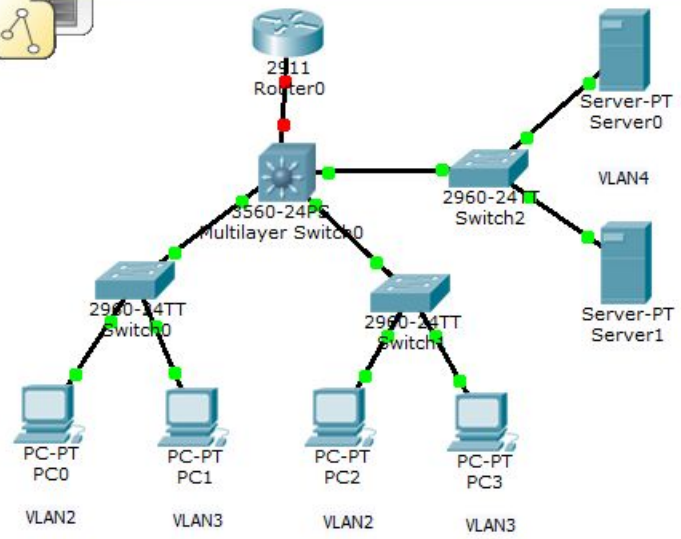
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 22:47 31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




Switch2

Physical Config CLI

IOS Command Line Interface

```
hostname Switch
!
!
!
!
spanning-tree mode pvst
!
interface FastEthernet0/1
 switchport access vlan 4
 switchport mode access
!
interface FastEthernet0/2
 switchport access vlan 4
 switchport mode access
!
interface FastEthernet0/3
 switchport trunk allowed vlan 4
 switchport mode trunk
!
interface FastEthernet0/4
!
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
```

Copy Paste

Viewport

Посмотрим наши интерфейсы,
набираем: «show run», «пробел». Интерфейсы созданы.

Time: 01:17:09 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0

New Delete

Toggle PDU List Window

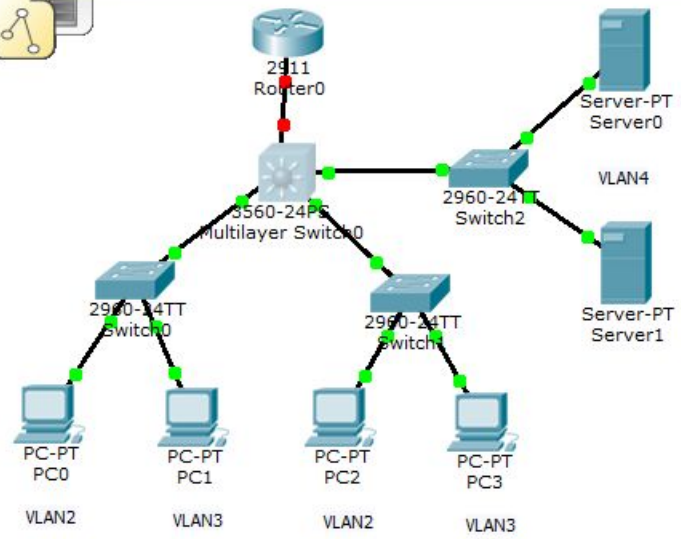
| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete |
|---|---|---|---|---|---|---|---|---|---|---|

ENG 22:49 31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




# Настраиваем центральный коммутатор.

Multilayer Switch0

Physical Config CLI

IOS Command Line Interface

```
Switch(config)#int fa 0/1
Switch(config-if)#sw
Switch(config-if)#switchport mode trunk
Command rejected: An interface whose trunk encapsulation is "Auto" can not be co
nfigured to "trunk" mode.
Switch(config-if)#sw
Switch(config-if)#switchport mode ?
  access   Set trunking mode to ACCESS unconditionally
  dynamic  Set trunking mode to dynamically negotiate access or trunk mode
  trunk    Set trunking mode to TRUNK unconditionally
Switch(config-if)#switchport tr
Switch(config-if)#switchport trunk ?
  allowed        Set allowed VLAN characteristics when interface is in trunking
                 mode
  encapsulation  Set trunking encapsulation when interface is in trunking mode
  native         Set trunking native characteristics when interface is in
                 trunking mode
Switch(config-if)#switchport trunk en
Switch(config-if)#switchport trunk encapsulation ?
  dot1q  Interface uses only 802.1q trunking encapsulation when trunking
Switch(config-if)#switchport trunk encapsulation d
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#sw
Switch(config-if)#switchport trunk allowed vlan 2,3
Switch(config-if)#exit
Switch(config)#
```

Copy Paste

Viewport

В режиме глобального конфигурирования набираем: «int fa 0/1», «switchport trunk encapsulation dot1q», «switchport trunk allowed vlan 2,3», «exit».

Time: 01:44:12 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0 New Delete Toggle PDU List Window

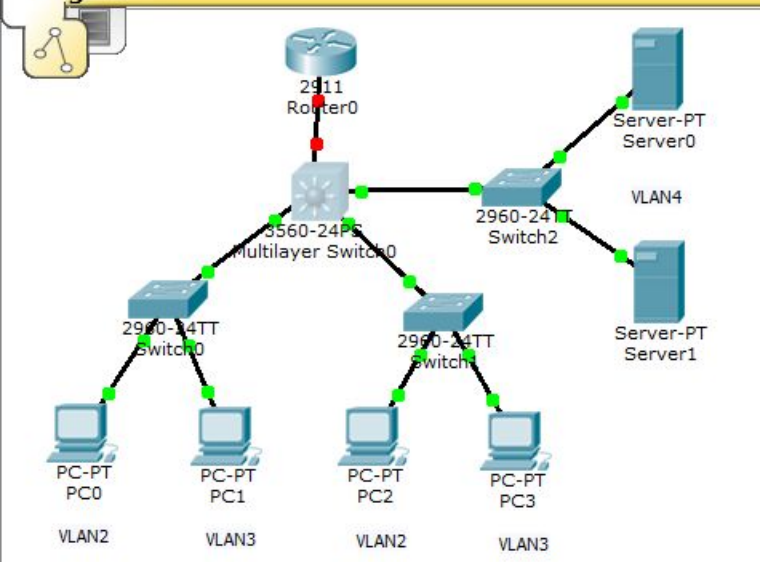
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 23:16 31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




# Настраиваем центральный коммутатор.

Multilayer Switch0

Physical Config CLI

IOS Command Line Interface

```
  dynamic  Set trunking mode to dynamically negotiate access or trunk mode
  trunk    Set trunking mode to TRUNK unconditionally
Switch(config-if)#switchport tr
Switch(config-if)#switchport trunk ?
  allowed        Set allowed VLAN characteristics when interface is in trunking
                 mode
  encapsulation  Set trunking encapsulation when interface is in trunking mode
  native         Set trunking native characteristics when interface is in
                 trunking mode
Switch(config-if)#switchport trunk en
Switch(config-if)#switchport trunk encapsulation ?
  dot1q  Interface uses only 802.1q trunking encapsulation when trunking
Switch(config-if)#switchport trunk encapsulation d
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#sw
Switch(config-if)#switchport trunk allowed vlan 2,3
Switch(config-if)#exit
Switch(config)#int fa 0/2
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#switchport trunk allowed vlan 2,3
Switch(config-if)#exit
Switch(config)#int fa 0/3
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#switchport trunk allowed vlan 4
Switch(config-if)#exit
Switch(config)#
```

Copy Paste

В режиме глобального конфигурирования набираем: «int fa 0/2», «switchport trunk encapsulation dot1q», «switchport trunk allowed vlan 2,3», «exit», «int fa 0/3», «switchport trunk encapsulation dot1q», «switchport trunk allowed vlan 4», «exit».

Time: 01:54:46 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0 New Delete Toggle PDU List Window

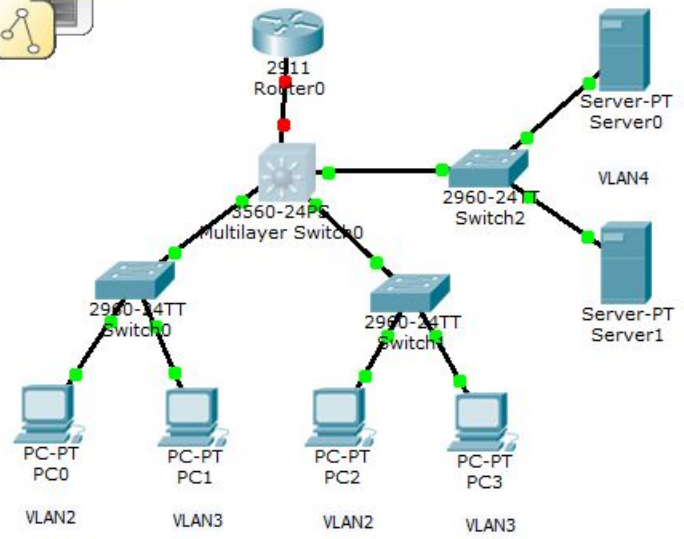
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 23:27 31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




# Настраиваем центральный коммутатор.

Multilayer Switch0

Physical Config CLI

IOS Command Line Interface

```
Switch(config-if)#switchport trunk allowed vlan 2,3
Switch(config-if)#exit
Switch(config)#int fa 0/2
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#switchport trunk allowed vlan 2,3
Switch(config-if)#exit
Switch(config)#int fa 0/3
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#switchport trunk allowed vlan 4
Switch(config-if)#exit
Switch(config)#int vlan 2
Switch(config-if)#ip address 192.168.22.1 255.255.255.0
Switch(config-if)#exit
Switch(config)#int vlan 3
Switch(config-if)#ip address 192.168.33.1 255.255.255.0
Switch(config-if)#exit
Switch(config)#int vlan 4
Switch(config-if)#ip address 192.168.44.1 255.255.255.0
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#wr mem
Building configuration...
[OK]
Switch#
```

Copy Paste

Viewport

Добавим IP-адреса: «int vlan 2»,
«ip address 192.168.22.1 255.255.255.0», «exit», «int vlan 3»,
«ip address 192.168.33.1 255.255.255.0», «exit», «int vlan 4»,
«ip address 192.168.44.1 255.255.255.0», «end», «wr mem».

Time: 02:09:56 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0

New Delete

Toggle PDU List Window

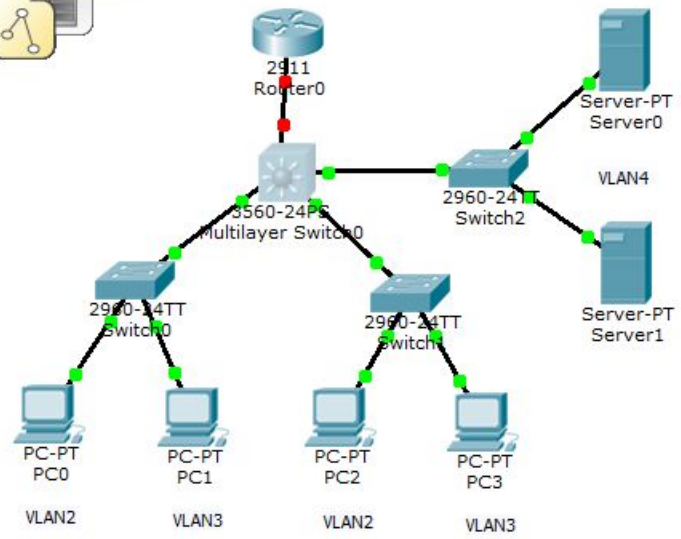
| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete |
|---|---|---|---|---|---|---|---|---|---|---|

ENG 23:42 31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




# Настраиваем центральный коммутатор.

Multilayer Switch0

Physical Config CLI

IOS Command Line Interface

```
!
!
!
!
interface FastEthernet0/1
 switchport trunk allowed vlan 2-3
 switchport trunk encapsulation dot1q
!
interface FastEthernet0/2
 switchport trunk allowed vlan 2-3
 switchport trunk encapsulation dot1q
!
interface FastEthernet0/3
 switchport trunk allowed vlan 4
 switchport trunk encapsulation dot1q
!
interface FastEthernet0/4
!
interface FastEthernet0/5
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
```

Copy Paste

Viewport

Посмотрим наши интерфейсы,
набираем: «show run», «пробел». Видим созданные интерфейсы.

Time: 02:13:39 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0

New Delete

Toggle PDU List Window

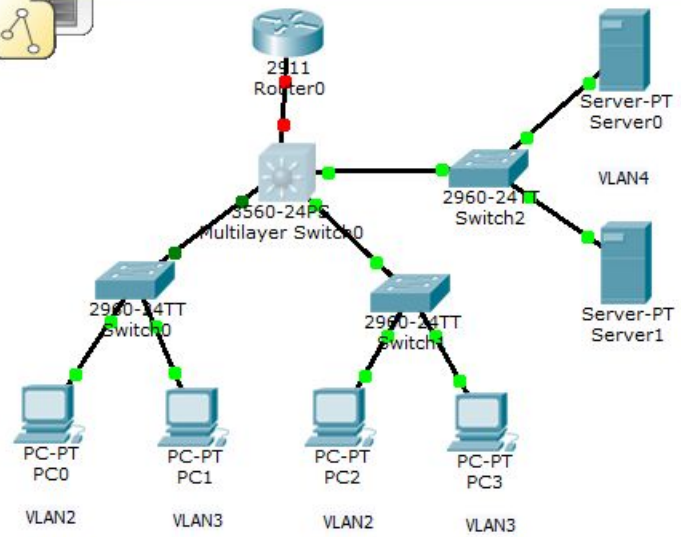
| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete |
|---|---|---|---|---|---|---|---|---|---|---|

ENG 23:46 31.10.2019

Cisco Packet Tracer - D:\Андрей\Компьютерные сети\МДК.01.01 Организация, принципы построения

File Edit Options View Tools Extensions Help

Logical [Root]




# Настраиваем центральный коммутатор.

Multilayer Switch0

Physical Config CLI

IOS Command Line Interface

```
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
 no ip address
 shutdown
!
interface Vlan2
 ip address 192.168.22.1 255.255.255.0
!
interface Vlan3
 ip address 192.168.33.1 255.255.255.0
!
interface Vlan4
 ip address 192.168.44.1 255.255.255.0
!
ip classless
!
!
!
!
!
!
!
```

Copy Paste

Viewport

# Жмём «пробел». Видим ip-адреса.

Time: 02:17:07 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

Scenario 0

New Delete

Toggle PDU List Window

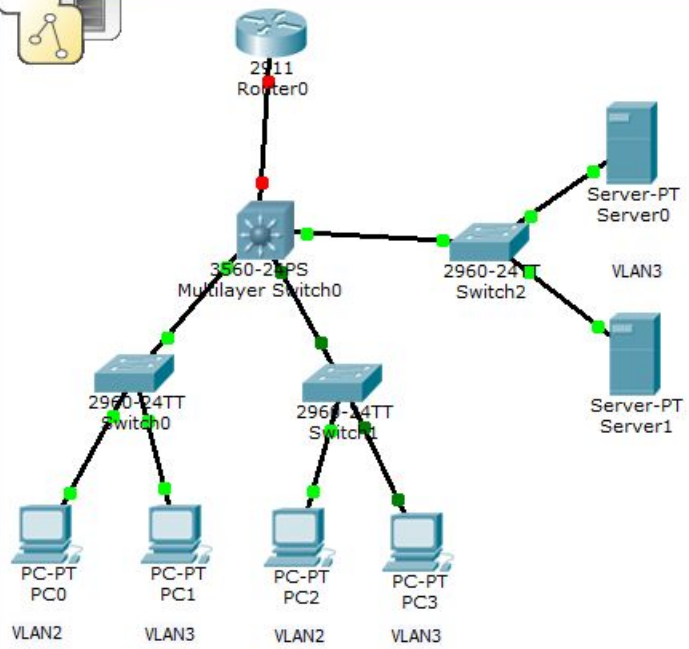
| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete |
|---|---|---|---|---|---|---|---|---|---|---|

РУС 23:49 31.10.2019

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root]




# Настраиваем центральный коммутатор.

Multilayer Switch0

Physical Config CLI

IOS Command Line Interface

```
Switch(config)#int vlan 3
Switch(config-if)#ip address 192.168.33.1 255.255.255.0
Switch(config-if)#exit
Switch(config)#int vlan 4
Switch(config-if)#ip address 192.168.44.1 255.255.255.0
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#wr mem
Building configuration...
[OK]
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#ip row
Switch(config)#ip rou
Switch(config)#ip rout
Switch(config)#ip routing
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#wr mem
Building configuration...
[OK]
Switch#
```

Copy Paste

Viewport

Сразу включаем: «ip routing», «end», сохраняем конфигурацию: «wr mem».

Time: 00:39:44 | Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

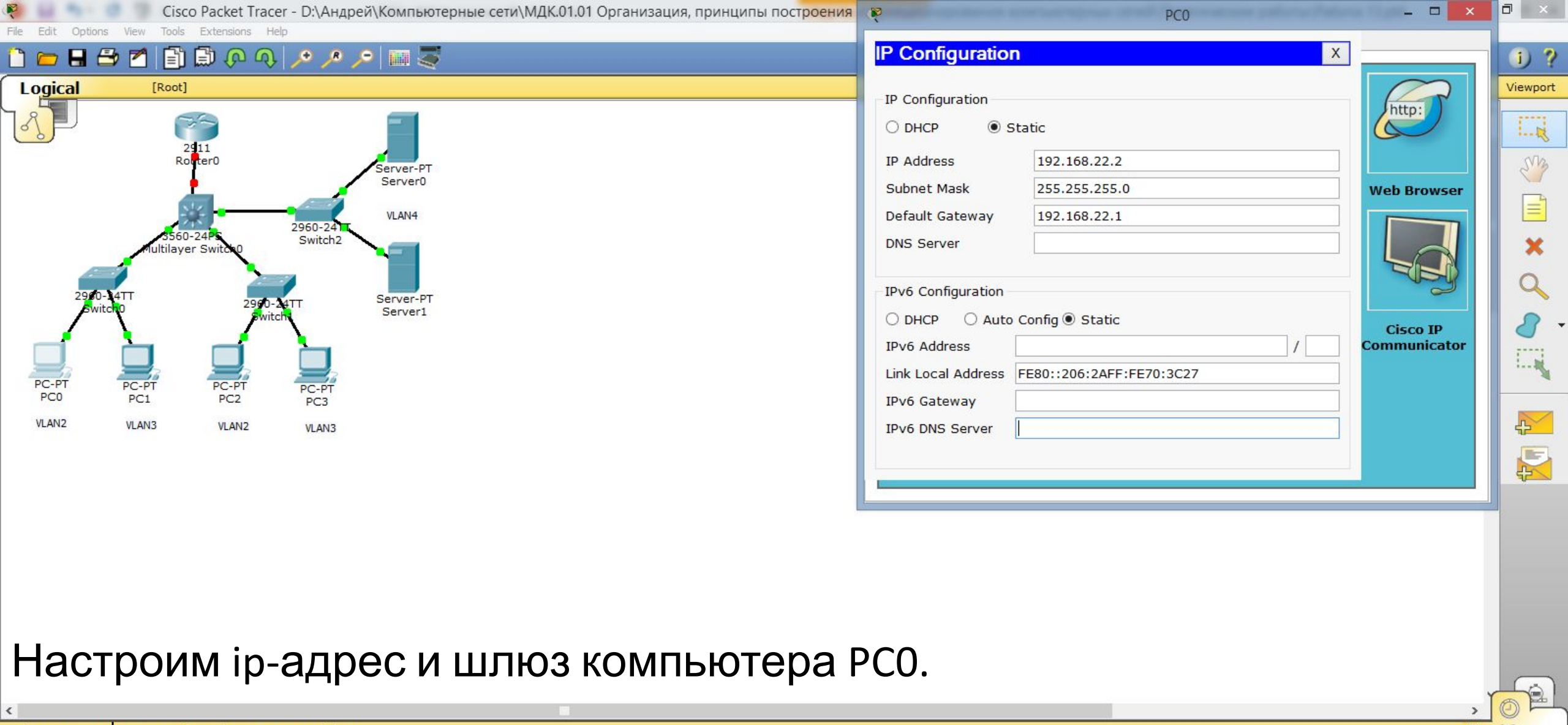
Scenario 0

New Delete

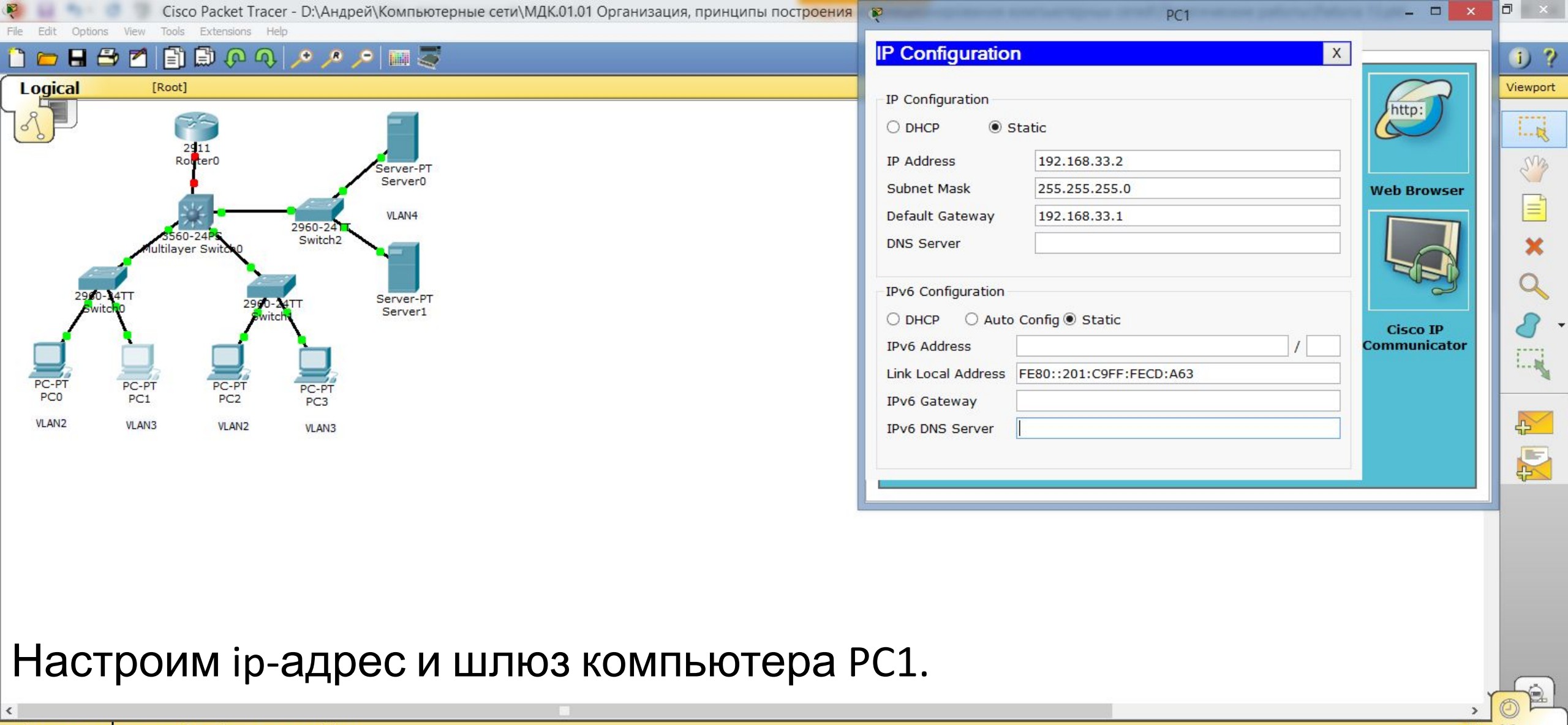
Toggle PDU List Window

| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete |
|---|---|---|---|---|---|---|---|---|---|---|

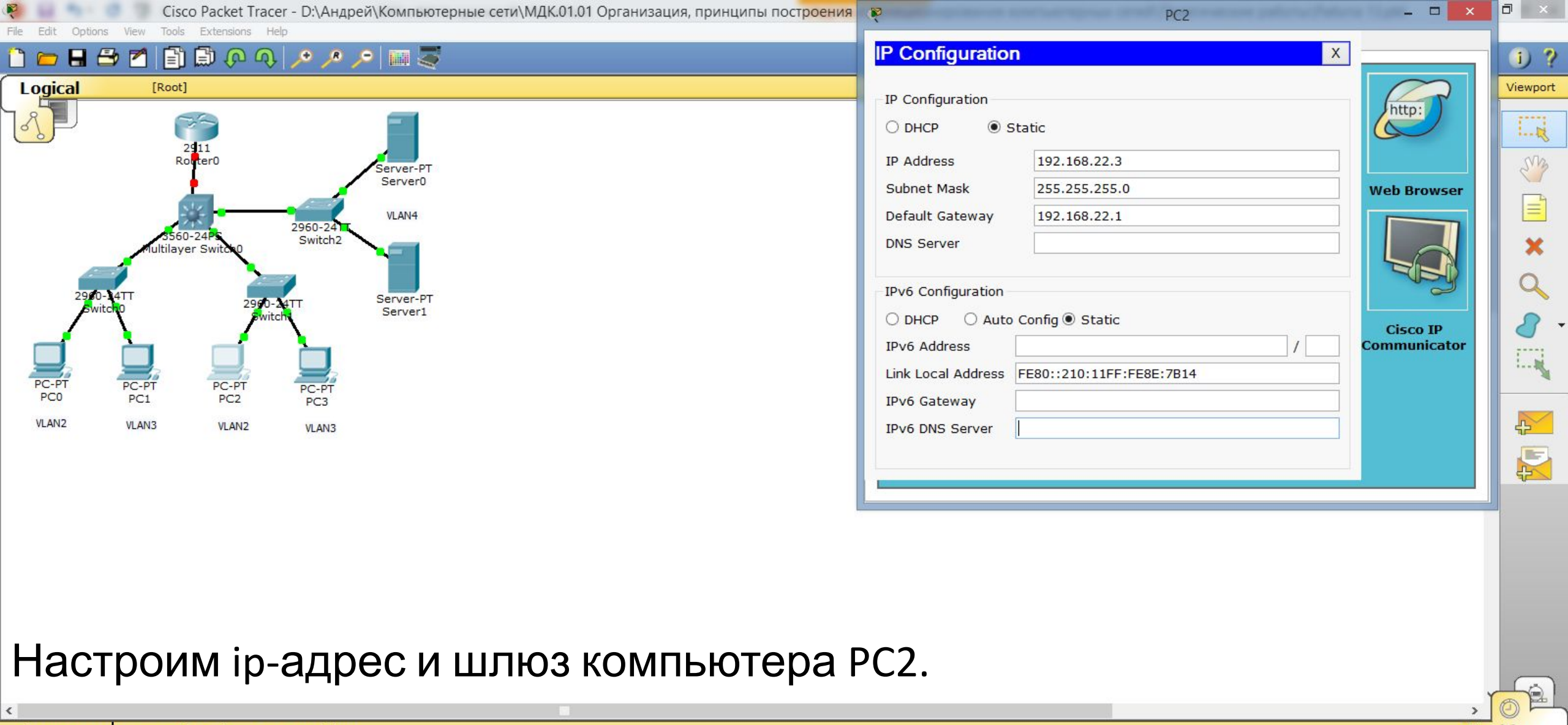
ENG 0:52 01.11.2019



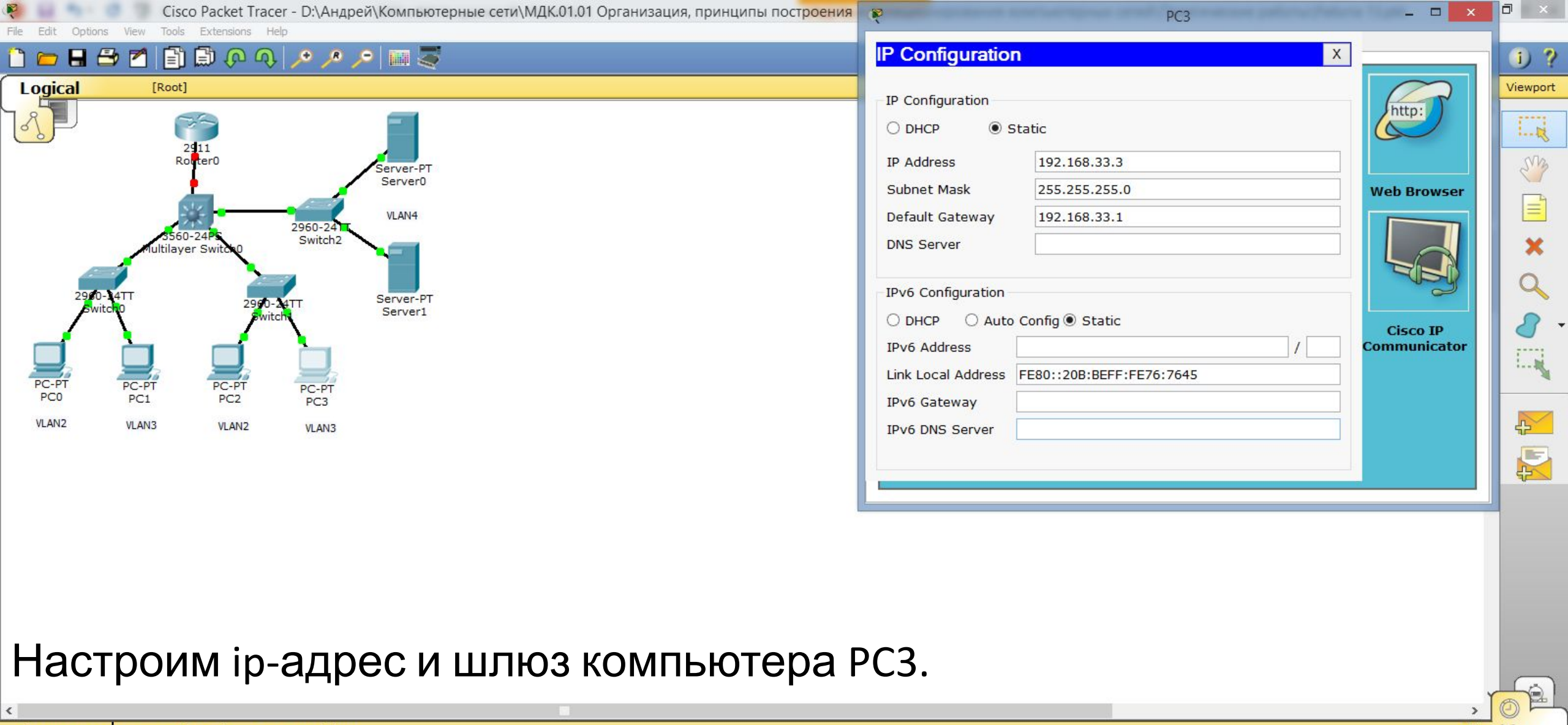

Настроим ip-адрес и шлюз компьютера PC0.



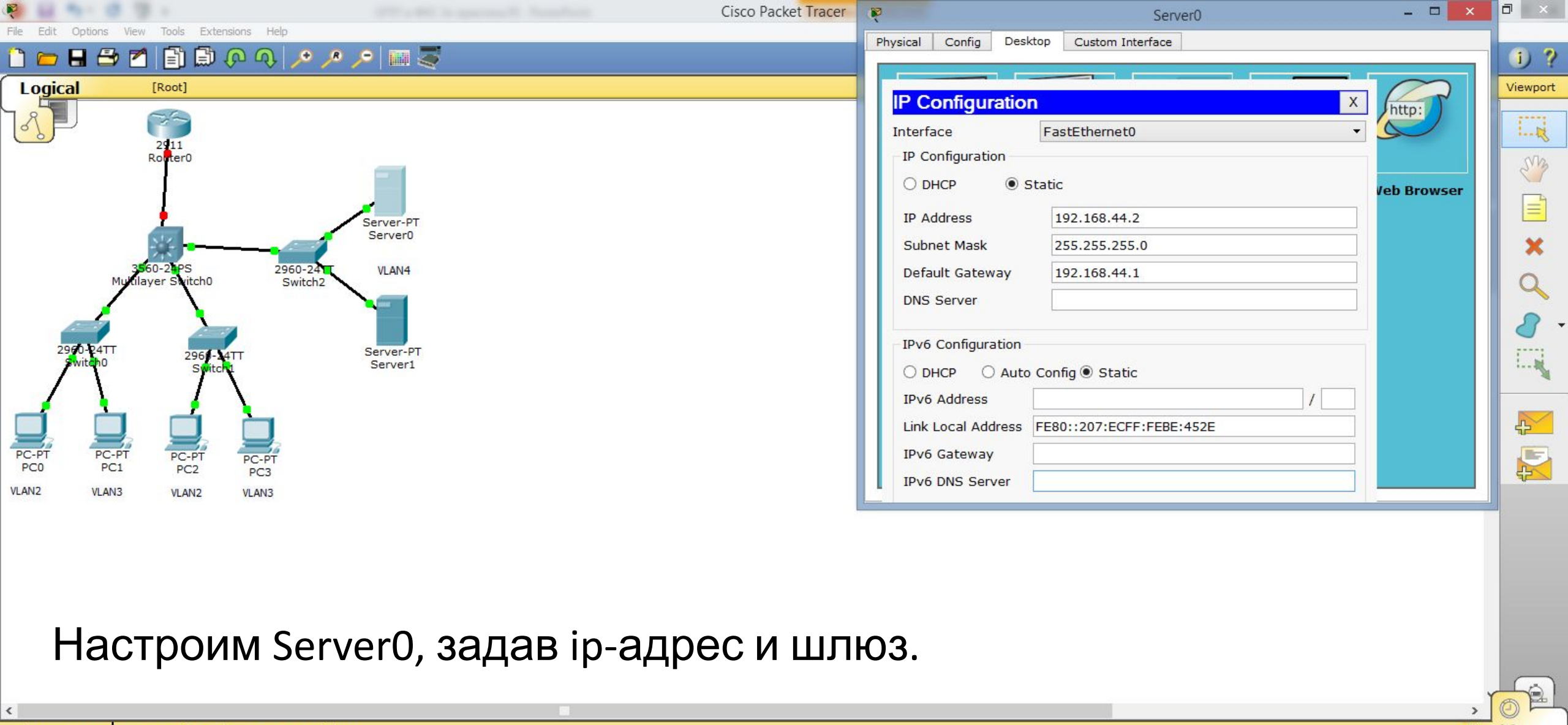

Настроим ip-адрес и шлюз компьютера PC1.



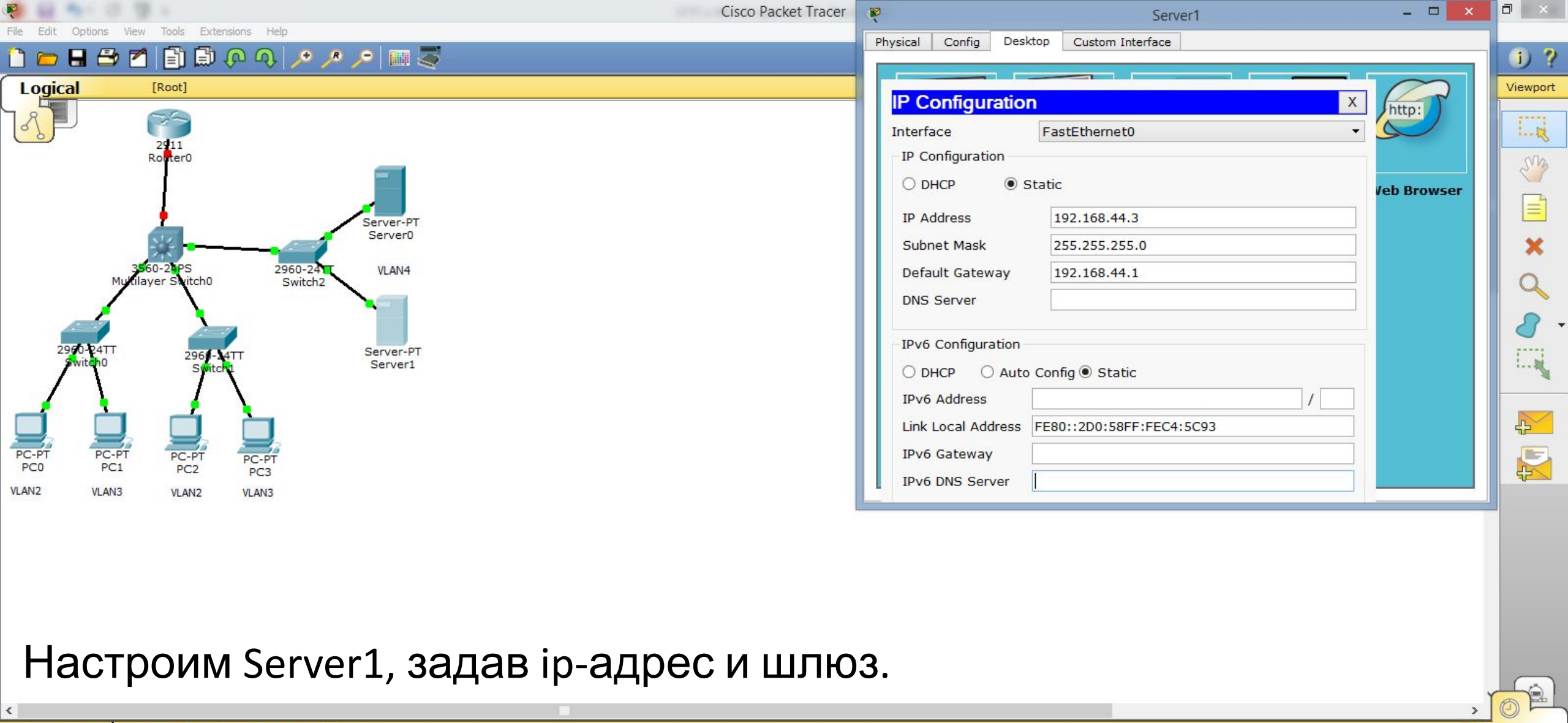

Настроим ip-адрес и шлюз компьютера PC2.




Настроим ip-адрес и шлюз компьютера PC3.




Настроим Server0, задав ip-адрес и шлюз.

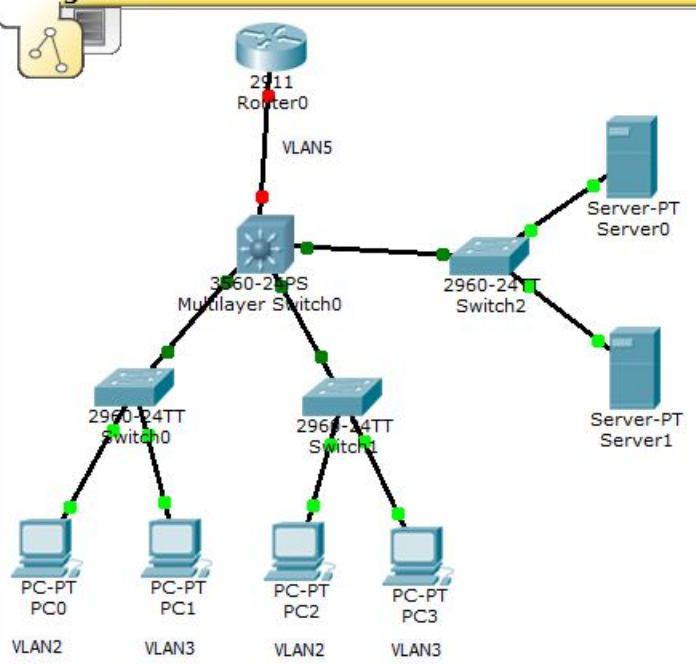



Настроим Server1, задав ip-адрес и шлюз.

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root]




Создадим VLAN5 на участке к маршрутизатору.

Продолжим настройку 3560.

Multilayer Switch0

Physical Config CLI

IOS Command Line Interface

```
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 5
Switch(config-vlan)#name VLAN5
Switch(config-vlan)#exit
Switch(config)#int vlan 5
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan5, changed state to up

Switch(config-if)#ip add
Switch(config-if)#ip address 192.168.55.2 255.255.255.0
Switch(config-if)#no shut
Switch(config-if)#no shu
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#int gi 0/1
Switch(config-if)#sw
Switch(config-if)#switchport mode access
Switch(config-if)#sw
Switch(config-if)#switchport access vlan 5
Switch(config-if)#exit
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#
```

Copy Paste

В режиме глобального конфигурирования набираем: «vlan 5», «name VLAN5», «exit», «int vlan 5», «ip address 192.168.55.2 255.255.255.0», «no shutdown», «exit», «int gi 0/1», «switchport mode access» , «switchport access vlan 5» , «exit» , «end».

Viewport

Time: 01:06:35 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

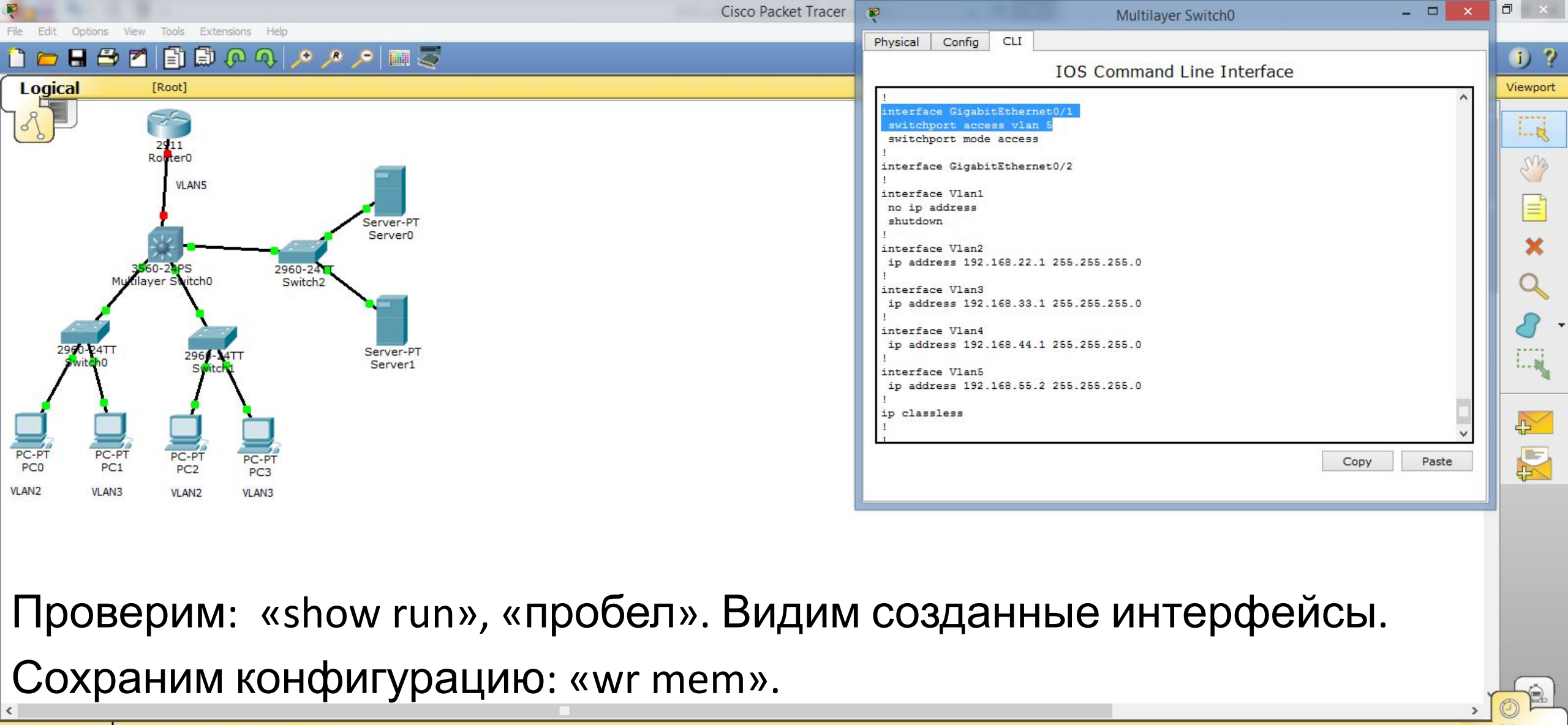
Scenario 0

New Delete

Toggle PDU List Window

| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete |
|---|---|---|---|---|---|---|---|---|---|---|

ENG 1:19 01.11.2019



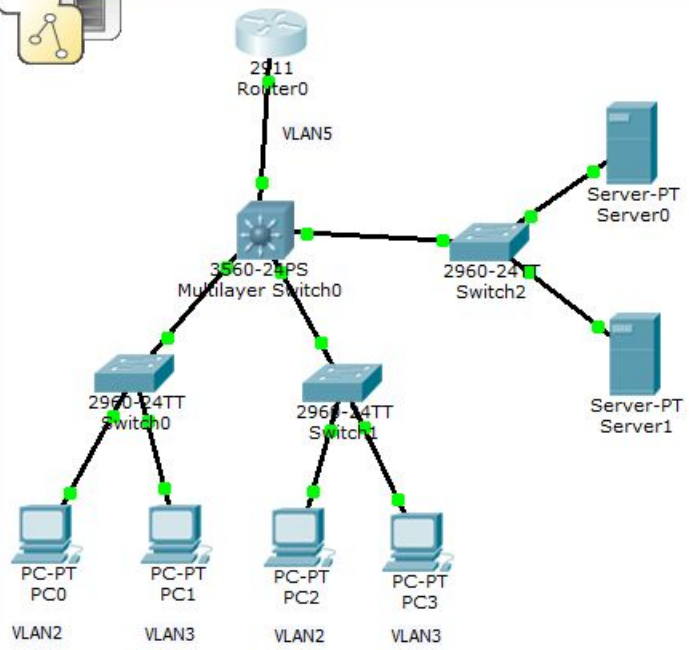

Проверим: «show run», «пробел». Видим созданные интерфейсы.

Сохраним конфигурацию: «wr mem».

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical [Root]




# Настоим маршрутизатор.

Router0

Physical Config CLI

IOS Command Line Interface

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int gi
Router(config)#int gigabitEthernet 0/0
Router(config-if)#no shut
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed stat
e to up

Router(config-if)#ip add
Router(config-if)#ip address 192.168.55.1 255.255.255.0
Router(config-if)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr mem
Building configuration...
[OK]
Router#
Router#
```

Copy Paste

Viewport

В режиме глобального конфигурирования набираем: «int gigabitEthernet 0/0», «no shutdown», «ip address 192.168.55.1 255.255.255.0», «end», «wr mem».

Time: 01:28:30 Power Cycle Devices Fast Forward Time

Realtime

Connections

Copper Straight-Through

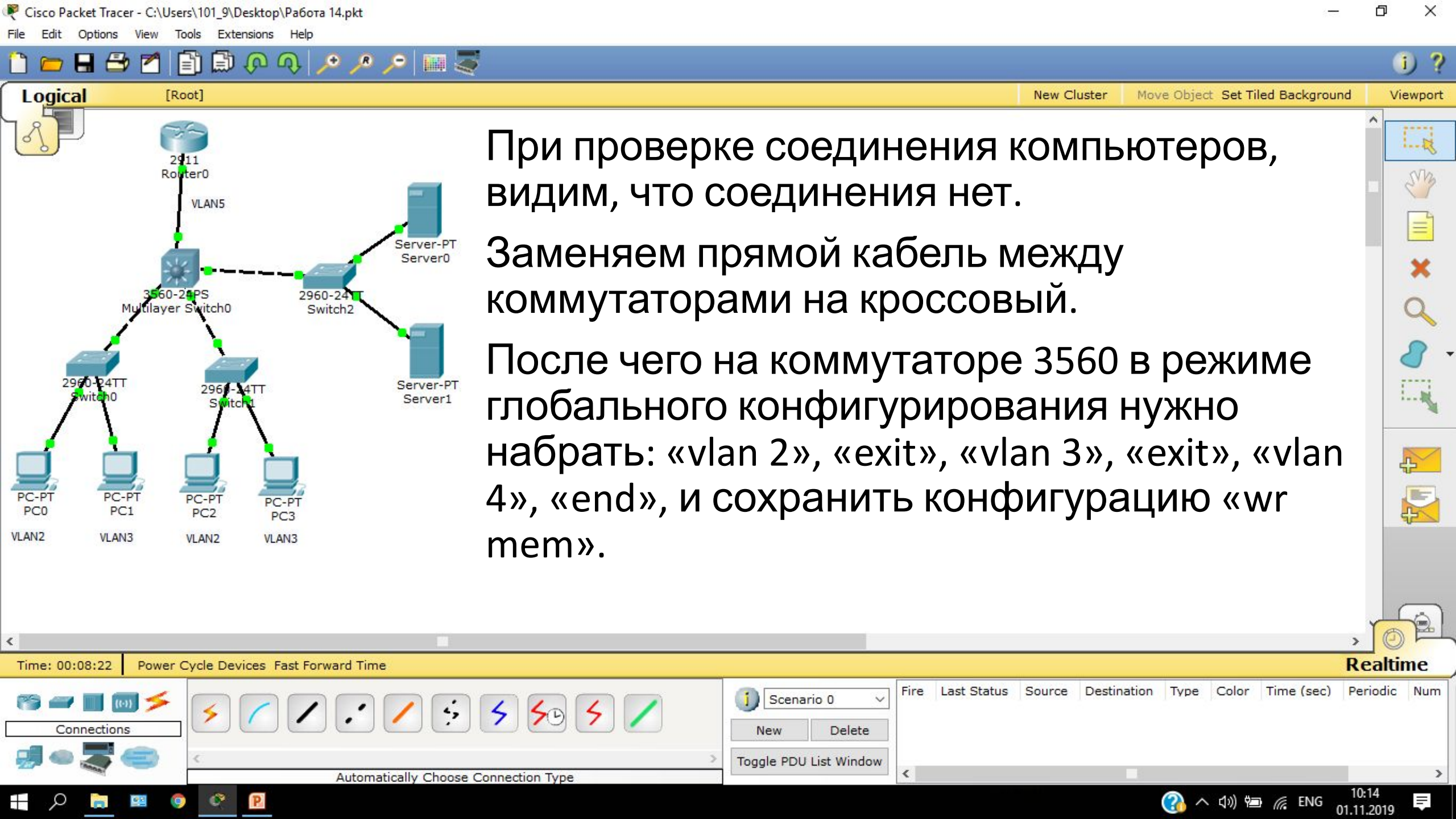
Scenario 0

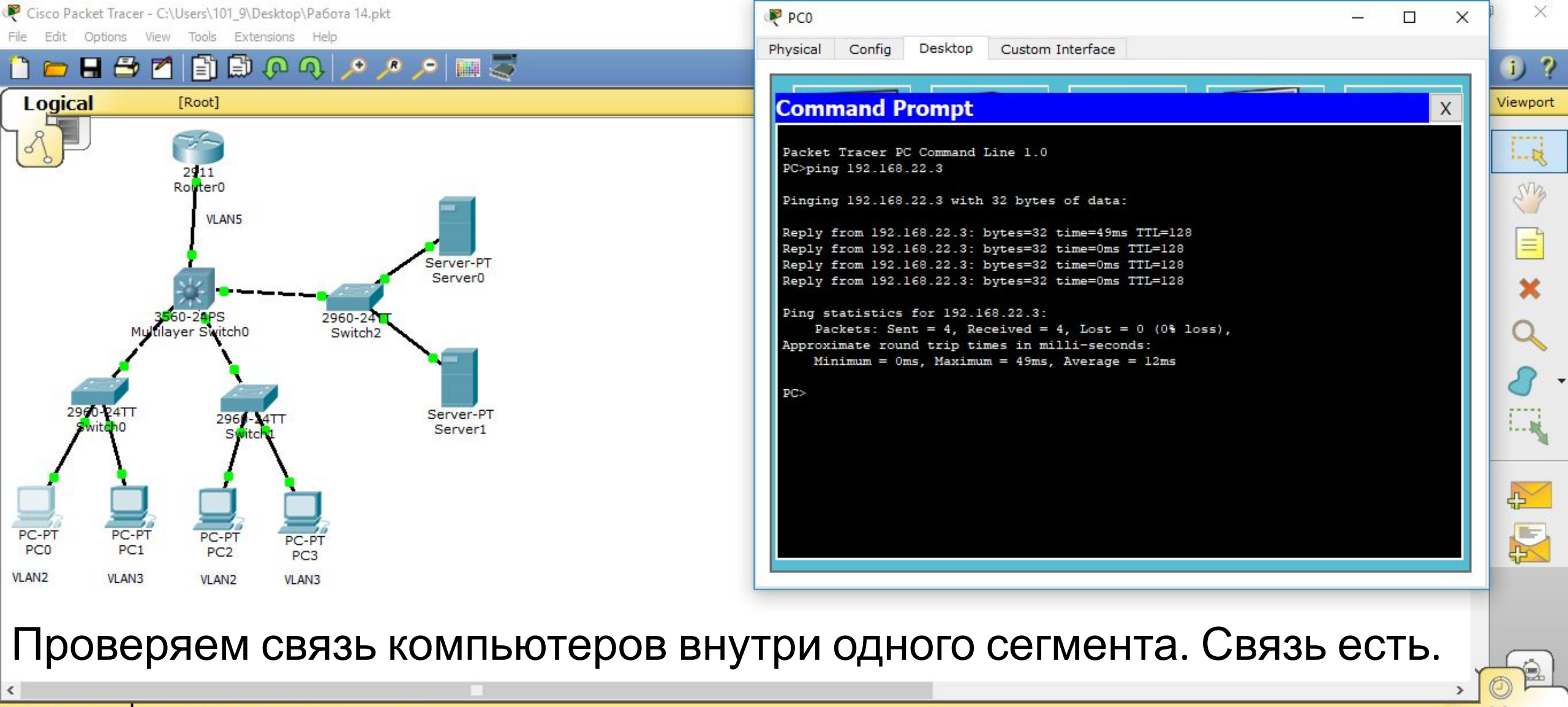
New Delete

Toggle PDU List Window

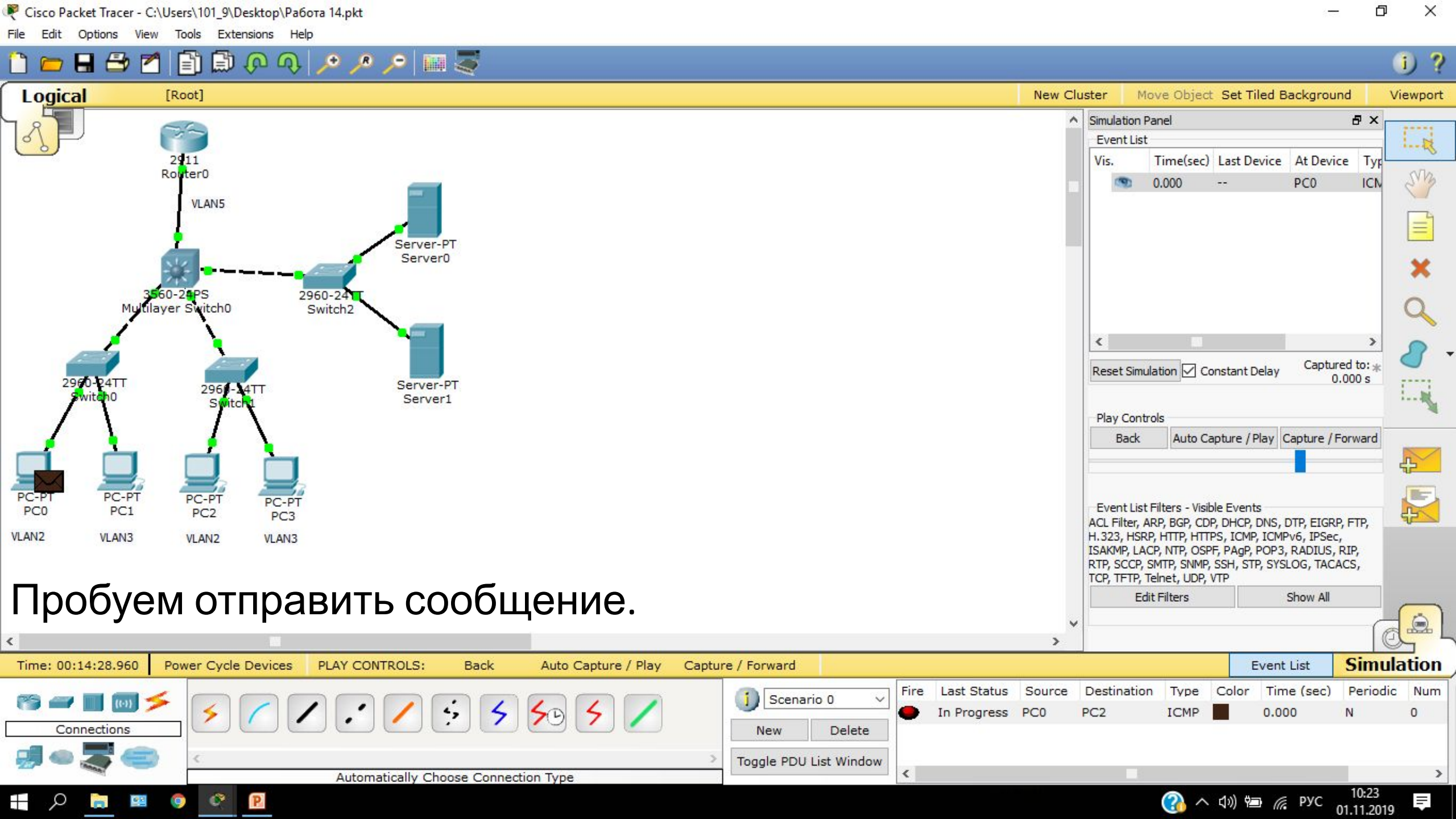
Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num | Edit | Delete

ENG 1:41 01.11.2019

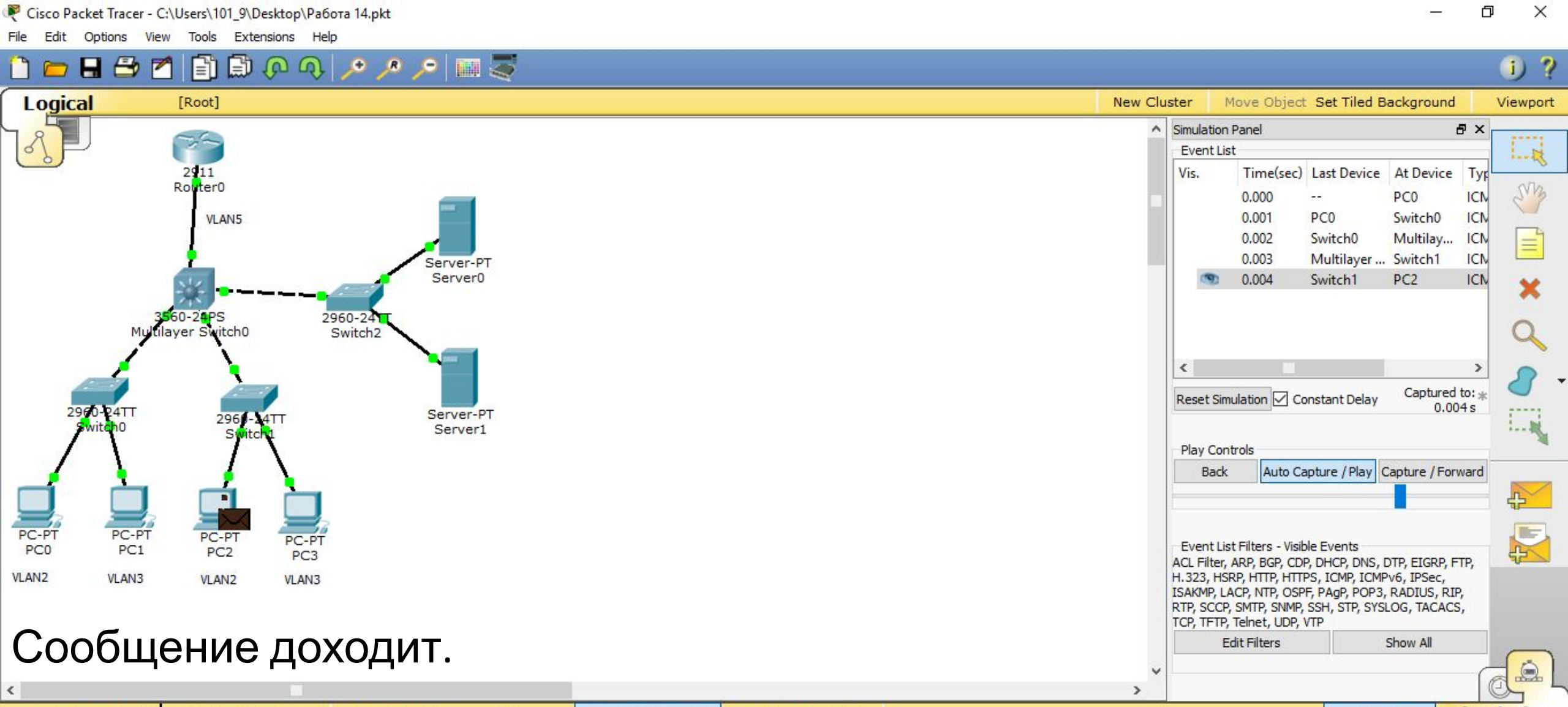

Cisco Packet Tracer - C:\Users\101_9\Desktop\Работа 14.pkt
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
2911
Router0
VLAN5
Server-PT
Server0
3560-24PS
Multilayer Switch0
2960-24TT
Switch2
2960-24TT
Switch0
2960-24TT
Switch1
Server-PT
Server1
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
PC-PT
PC3
VLAN2
VLAN3
VLAN2
VLAN3
При проверке соединения компьютеров, видим, что соединения нет.
Заменяем прямой кабель между коммутаторами на кроссовый.
После чего на коммутаторе 3560 в режиме глобального конфигурирования нужно набрать: «vlan 2», «exit», «vlan 3», «exit», «vlan 4», «end», и сохранить конфигурацию «wr mem».
Time: 00:08:22
Power Cycle Devices
Fast Forward Time
Realtime
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time (sec)
Periodic
Num
ENG
10:14
01.11.2019



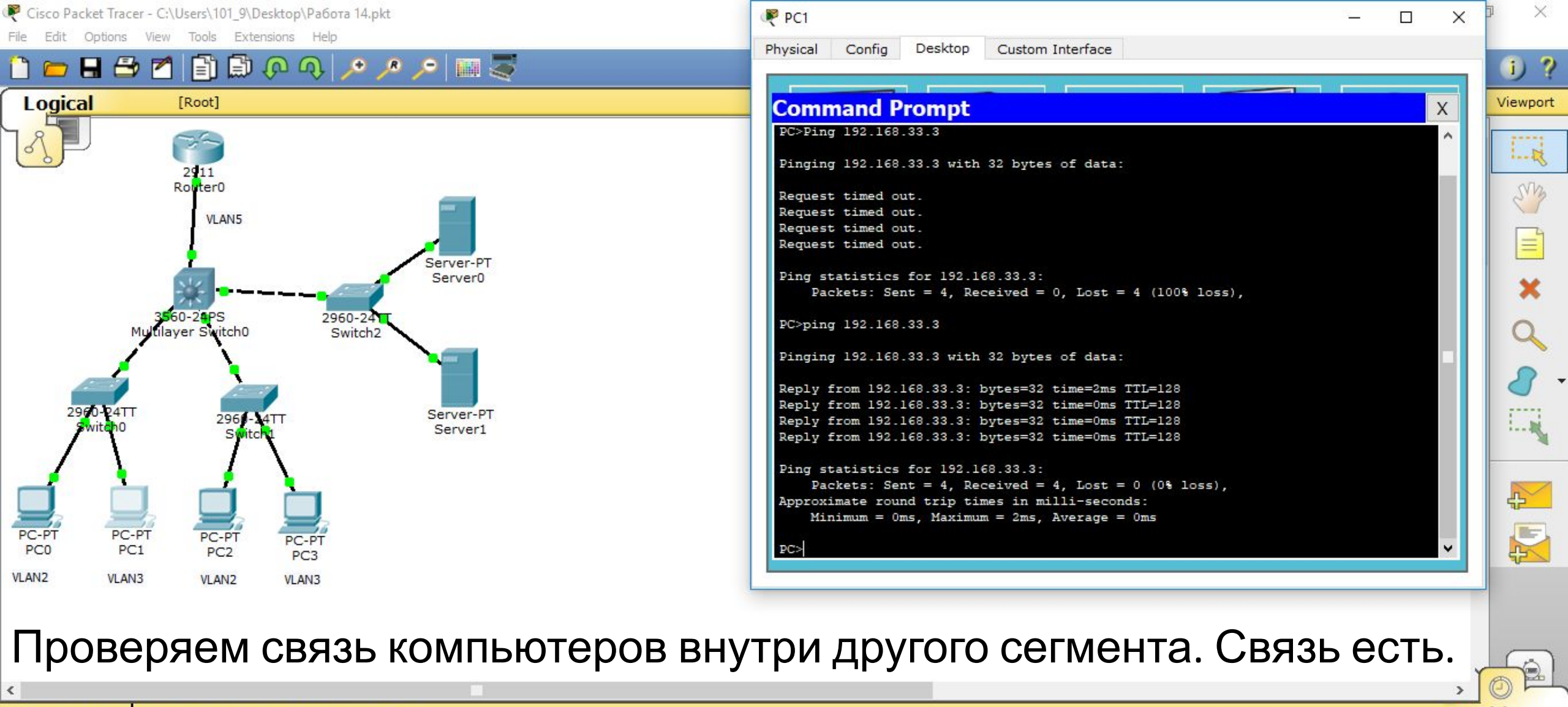

Проверяем связь компьютеров внутри одного сегмента. Связь есть.



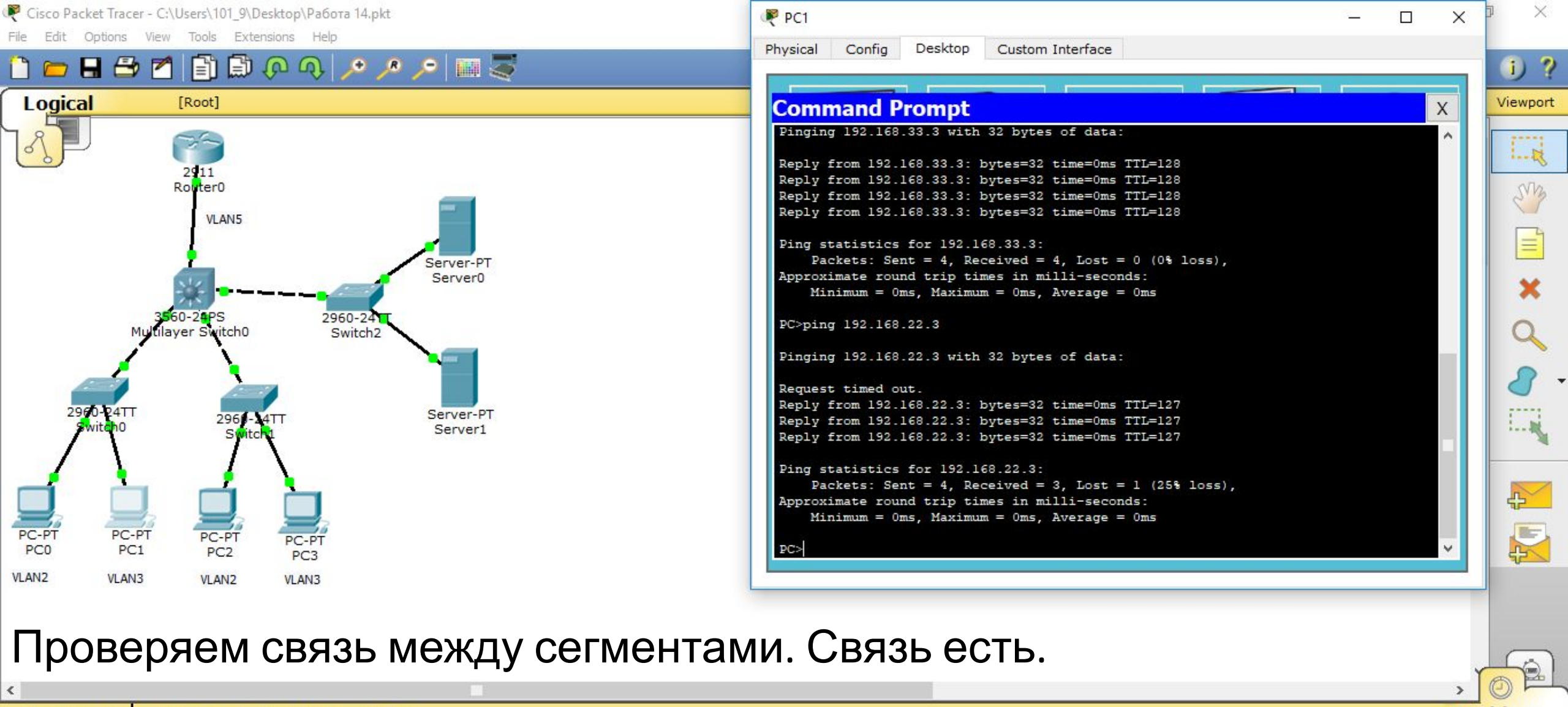

Пробуем отправить сообщение.




Сообщение доходит.




Проверяем связь компьютеров внутри другого сегмента. Связь есть.

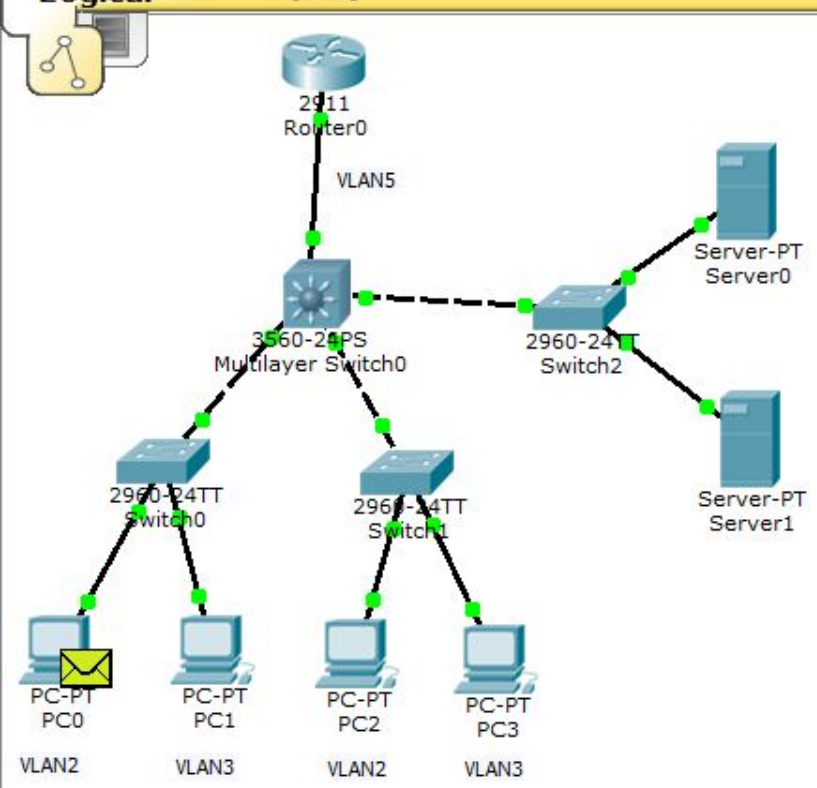



Проверяем связь между сегментами. Связь есть.

Cisco Packet Tracer - C:\Users\101_9\Desktop\Работа 14.pkt

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




Simulation Panel

Event List

| Vis. | Time(sec) | Last Device | At Device | Typ |
|---|---|---|---|---|
| | 0.000 | -- | PC0 | ICM |

Reset Simulation | Constant Delay | Captured to: 0.000 s

Play Controls

Back | Auto Capture / Play | Capture / Forward

Event List Filters - Visible Events

ACL Filter, ARP, BGP, CDP, DHCP, DNS, DTP, EIGRP, FTP, H.323, HSRP, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NTP, OSPF, PAgP, POP3, RADIUS, RIP, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters | Show All

# Пробуем отправить сообщение в другой сегмент.

Time: 00:25:58.098 | Power Cycle Devices | PLAY CONTROLS: Back | Auto Capture / Play | Capture / Forward | Event List | Simulation

Connections

Automatically Choose Connection Type

Scenario 0

New | Delete

Toggle PDU List Window

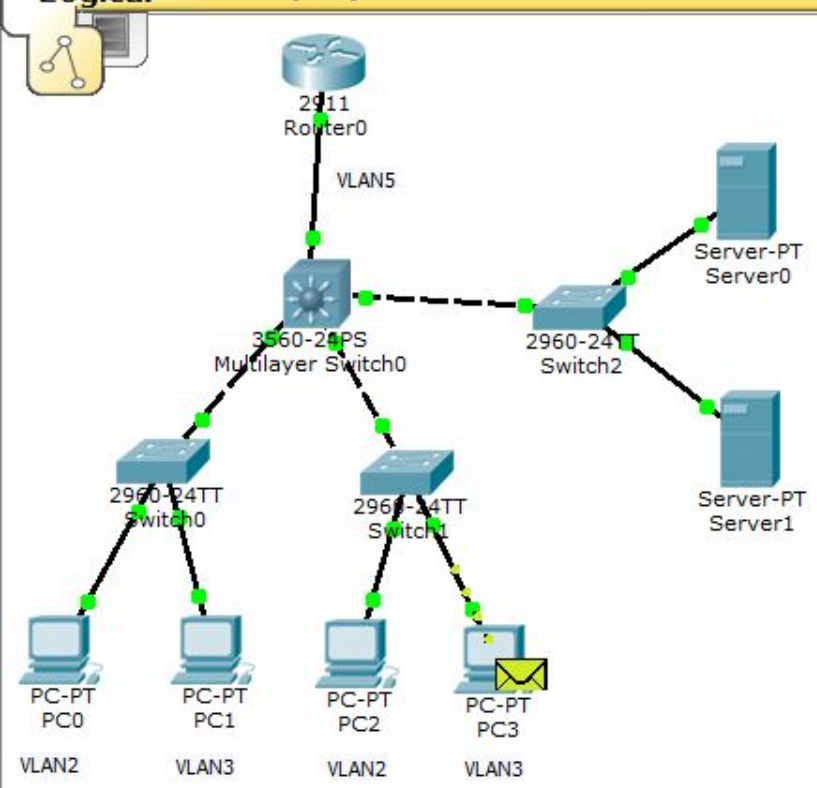
| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num |
|---|---|---|---|---|---|---|---|---|
| | In Progress | PC0 | PC3 | ICMP | | 0.000 | N | 0 |

РУС 10:36 01.11.2019

Cisco Packet Tracer - C:\Users\101_9\Desktop\Работа 14.pkt

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Move Object Set Tiled Background Viewport




Simulation Panel

Event List

| Vis. | Time(sec) | Last Device | At Device | Typ |
|---|---|---|---|---|
| | 0.000 | -- | PC0 | ICM |
| | 0.001 | PC0 | Switch0 | ICM |
| | 0.002 | Switch0 | Multilay... | ICM |
| | 0.003 | Multilayer ... | Switch1 | ICM |
| | 0.004 | Switch1 | PC3 | ICM |

Reset Simulation | Constant Delay | Captured to: 0.004 s

Play Controls

Back | Auto Capture / Play | Capture / Forward

Event List Filters - Visible Events

ACL Filter, ARP, BGP, CDP, DHCP, DNS, DTP, EIGRP, FTP, H.323, HSRP, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NTP, OSPF, PAgP, POP3, RADIUS, RIP, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters | Show All

Сообщение доходит.

Time: 00:25:58.102 | Power Cycle Devices | PLAY CONTROLS: Back | Auto Capture / Play | Capture / Forward | Event List | Simulation

Connections

Automatically Choose Connection Type

Scenario 0

New | Delete

Toggle PDU List Window

| Fire | Last Status | Source | Destination | Type | Color | Time (sec) | Periodic | Num |
|---|---|---|---|---|---|---|---|---|
| | In Progress | PC0 | PC3 | ICMP | | 0.000 | N | 0 |

РУС 10:38 01.11.2019

| Маска подсети | Маска в двоичной системе | Префикс | Количество адресов | Обратная маска |
|---|---|---|---|---|
| 255.255.255.255 | 11111111.11111111.11111111.11111111 | /32 | 1 | 0.0.0.0 |
| 255.255.255.254 | 11111111.11111111.11111111.11111110 | /31 | 2 | 0.0.0.1 |
| 255.255.255.252 | 11111111.11111111.11111111.11111100 | /30 | 4 | 0.0.0.3 |
| 255.255.255.248 | 11111111.11111111.11111111.11111000 | /29 | 8 | 0.0.0.7 |
| 255.255.255.240 | 11111111.11111111.11111111.11110000 | /28 | 16 | 0.0.0.15 |
| 255.255.255.224 | 11111111.11111111.11111111.11100000 | /27 | 32 | 0.0.0.31 |
| 255.255.255.192 | 11111111.11111111.11111111.11000000 | /26 | 64 | 0.0.0.63 |
| 255.255.255.128 | 11111111.11111111.11111111.10000000 | /25 | 128 | 0.0.0.127 |
| 255.255.255.0 | 11111111.11111111.11111111.00000000 | /24 | 256 | 0.0.0.255 |
| 255.255.254.0 | 11111111.11111111.11111110.00000000 | /23 | 512 | 0.0.1.255 |
| 255.255.252.0 | 11111111.11111111.11111100.00000000 | /22 | 1024 | 0.0.3.255 |
| 255.255.248.0 | 11111111.11111111.11111000.00000000 | /21 | 2048 | 0.0.7.255 |
| 255.255.240.0 | 11111111.11111111.11110000.00000000 | /20 | 4096 | 0.0.15.255 |
| 255.255.224.0 | 11111111.11111111.11100000.00000000 | /19 | 8192 | 0.0.31.255 |
| 255.255.192.0 | 11111111.11111111.11000000.00000000 | /18 | 16384 | 0.0.63.255 |
| 255.255.128.0 | 11111111.11111111.10000000.00000000 | /17 | 32768 | 0.0.127.255 |
| 255.255.0.0 | 11111111.11111111.00000000.00000000 | /16 | 65536 | 0.0.255.255 |
| 255.254.0.0 | 11111111.11111110.00000000.00000000 | /15 | 131072 | 0.1.255.255 |
| 255.252.0.0 | 11111111.11111100.00000000.00000000 | /14 | 262144 | 0.3.255.255 |
| 255.248.0.0 | 11111111.11111000.00000000.00000000 | /13 | 524288 | 0.7.255.255 |
| 255.240.0.0 | 11111111.11110000.00000000.00000000 | /12 | 1048576 | 0.15.255.255 |

# Список литературы: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2. Компьютерные сети. Принципы, технологии, протоколы, В. Олифер, Н. Олифер (5-е издание), «Питер», Москва, Санк-Петербург, 2016.
3. Компьютерные сети. Э. Таненбаум, 4-е издание, «Питер», Москва, Санк-Петербург, 2003.

# Список ссылок:


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https://bigslide.ru/images/51/50961/960/img12.jpg

https://bigslide.ru/images/51/50961/960/img11.jpg

https://1.bp.blogspot.com/-qptz15WfEJE/XDoN736gSvI/AAAAAAAAAU8/ESDrBE1iP-0vt5keIdxrnh_Y6ZpF2_2tQCLcBGAs/s1600/Hybrid-Network.jpg

http://www.klikglodok.com/toko/19948-thickbox_default/jual-harga-allied-telesis-switch-16-port-gigabit-10-100-1000-unmanaged-at-gs900-16.jpg

http://900igr.net/up/datas/221400/029.jpg

# Спасибо за внимание!

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