

## Лабораторная работа 5 по cisco packet traser

Землянский В. ИС223

### Цель работы

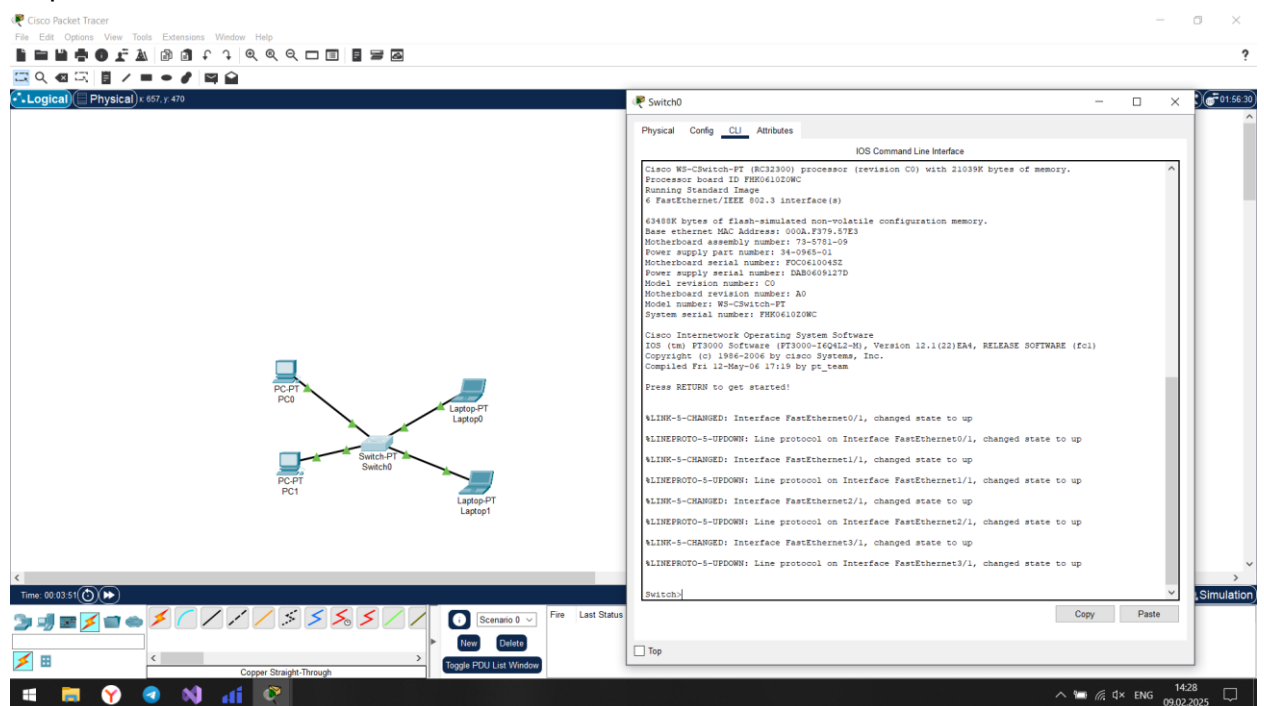
Настроить виртуальные локальные сети (VLAN) на коммутаторе, чтобы разделить сеть на два отдела: программисты и бухгалтеры. Проверить передачу данных внутри VLAN и между VLAN.

В ходе работы я настроил VLAN для разделения сети на отдел программистов и отдел бухгалтеров. В результате получил это:

- Передача данных внутри VLAN работает.
- Передача данных между VLAN невозможна без дополнительной настройки (например, маршрутизатора).

После настройки я провёл тестирование, используя ping и Simulation Mode. В результате пакеты успешно передавались внутри VLAN

### Скриншоты:



Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x: 1150, y: 450

Time: 00:15:48

Scenario 0

File Last Status Source Destination Type Color

Copper Straight-Through

Toggle PDU List Window

Switch0

Physical Config CLI Attributes

IOS Command Line Interface

Press RETURN to get started.

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name programmers
Switch(config-vlan)#exit
Switch(config)#vlan 3
Switch(config-vlan)#name accountants
Switch(config-vlan)#exit
Switch(config)#interface FastEthernet 0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#interface FastEthernet 1/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#interface FastEthernet 2/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#interface FastEthernet 3/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#show
```

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## IOS Command Line Interface

```
% Unrecognized command
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show ?
  access-lists      List access lists
  arp                Arp table
  boot               show boot attributes
  cdp                CDP information
  clock              Display the system clock
  crypto             Encryption module
  dtp                DTP information
  etherchannel       EtherChannel information
  flash:             display information about flash: file system
  history            Display the session command history
  hosts              IP domain-name, lookup style, nameservers, and host table
  interfaces         Interface status and configuration
  ip                 IP information
  lldp               LLDP information
  logging            Show the contents of logging buffers
  mac                MAC configuration
  mac-address-table  MAC forwarding table
  mls                Show MultiLayer Switching information
  monitor            SPAN information and configuration
  ntp                Network time protocol
  port-security      Show secure port information
  privilege          Show current privilege level
  processes          Active process statistics

Switch#show vlan brief

VLAN Name                Status    Ports
-----
1    default                active    Fa4/1, Fa5/1
2    programmers            active    Fa0/1, Fa1/1
3    accountants            active    Fa2/1, Fa3/1
1002 fddi-default          active
1003 token-ring-default    active
1004 fddinet-default       active
1005 trnet-default         active
Switch#
```

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Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x 1305, y 480

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	--
	0.000	--
	0.000	--

Reset Simulation Constant Delay Captured to: 0.000 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TOP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:18:40 320 PLAY CONTROLS

Scenario 0

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

Copper Straight-Through

Toggle PDU List Window

15:05 09.02.2025

Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x 1088, y 287

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	--
	0.000	--
	0.000	--
	0.001	PC0
	0.001	Laptop0
	0.002	Switch0
	0.002	Switch0
	0.003	PC1
	0.003	Laptop1
	0.004	Switch0
	0.004	Switch0
	0.005	PC0

Reset Simulation Constant Delay Captured to: 0.005 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TOP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:18:40 320 PLAY CONTROLS

Scenario 0

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

Copper Straight-Through

Toggle PDU List Window

15:06 09.02.2025

Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x: 1308, y: 432

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	--
	0.000	--
	0.000	--
	0.001	PC0
	0.001	Laptop0
	0.002	Switch0
	0.002	Switch0
	0.003	PC1
	0.003	Laptop1
	0.004	Switch0
	0.004	Switch0
	0.005	PC0

Reset Simulation Constant Delay Captured to: 0.005 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TOP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RIPv3, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Scenario 0

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

New Delete

Toggle PDU List Window

Copper Straight-Through

Time: 00:18:40:328 PLAY CONTROLS

15:06 09.02.2025

Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x: 1540, y: 509

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	--
	0.000	--
	0.000	--
	0.001	PC0
	0.001	Laptop0
	0.002	Switch0
	0.002	Switch0
	0.003	PC1
	0.003	Laptop1
	0.004	Switch0
	0.004	Switch0
	0.005	PC0

Reset Simulation Constant Delay Captured to: 0.005 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TOP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RIPv3, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Scenario 0

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

New Delete

Toggle PDU List Window

Copper Straight-Through

Time: 00:18:40:328 PLAY CONTROLS

15:06 09.02.2025

Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x: 1550, y: 480

PC-P  
Laptop-PT  
Switch-P  
PC-PT  
Laptop-PT

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	--
	0.000	--
	0.000	--
	0.001	PC0
	0.001	Laptop0
	0.002	Switch0
	0.002	Switch0
	0.003	PC1
	0.003	Laptop1
	0.004	Switch0
	0.004	Switch0
	0.005	PC0

Reset Simulation ☒ Constant Delay Captured to: 0.005 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TGP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:18:40:328 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Copper Straight-Through

15:06 09.02.2025

Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x: 1540, y: 500

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	--
	0.000	--
	0.000	--
	0.001	PC0
	0.001	Laptop0
	0.002	Switch0
	0.002	Switch0
	0.003	PC1
	0.003	Laptop1
	0.004	Switch0
	0.004	Switch0
	0.005	PC0

Reset Simulation Constant Delay Captured to: 0.005 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TOP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RIPv3, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Scenario 0

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

New Delete

Toggle PDU List Window

Copper Straight-Through

Time: 00:18:40:328 PLAY CONTROLS

15:06 09.02.2025

Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x: 1308, y: 432

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	--
	0.000	--
	0.000	--
	0.001	PC0
	0.001	Laptop0
	0.002	Switch0
	0.002	Switch0
	0.003	PC1
	0.003	Laptop1
	0.004	Switch0
	0.004	Switch0
	0.005	PC0

Reset Simulation Constant Delay Captured to: 0.005 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TOP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RIPv3, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Scenario 0

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

New Delete

Toggle PDU List Window

Copper Straight-Through

Time: 00:18:40:328 PLAY CONTROLS

15:06 09.02.2025

Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x 1088, y 267

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	--
	0.000	--
	0.000	--
	0.001	PC0
	0.001	Laptop0
	0.002	Switch0
	0.002	Switch0
	0.003	PC1
	0.003	Laptop1
	0.004	Switch0
	0.004	Switch0
	0.005	PC0

Reset Simulation Constant Delay Captured to: 0.005 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TGP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:18:40 328 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Copper Straight-Through

15:06 09.02.2025

Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x 1305, y 486

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	0.000	--
	0.000	--
	0.000	--

Reset Simulation Constant Delay Captured to: 0.000 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, Iot, Iot TGP, LACP, LLDP, Meraki, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPv2, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:18:40 328 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Copper Straight-Through

15:05 09.02.2025



## IOS Command Line Interface

```
% Unrecognized command
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show ?
  access-lists      List access lists
  arp                Arp table
  boot               show boot attributes
  cdp                CDP information
  clock              Display the system clock
  crypto             Encryption module
  dtp                DTP information
  etherchannel       EtherChannel information
  flash:             display information about flash: file system
  history            Display the session command history
  hosts              IP domain-name, lookup style, nameservers, and host table
  interfaces         Interface status and configuration
  ip                 IP information
  lldp               LLDP information
  logging            Show the contents of logging buffers
  mac                MAC configuration
  mac-address-table  MAC forwarding table
  mls                Show MultiLayer Switching information
  monitor            SPAN information and configuration
  ntp                Network time protocol
  port-security      Show secure port information
  privilege          Show current privilege level
  processes          Active process statistics

Switch#show vlan brief

VLAN Name                Status    Ports
-----
1    default                active    Fa4/1, Fa5/1
2    programmers            active    Fa0/1, Fa1/1
3    accountants            active    Fa2/1, Fa3/1
1002 fddi-default          active
1003 token-ring-default    active
1004 fddinet-default       active
1005 trnet-default         active
Switch#
```

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Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x: 1150, y: 450

Time: 00:15:48

Scenario 0

File Last Status Source Destination Type Color

Toggle PDU List Window

Switch0

Physical Config CLI Attributes

IOS Command Line Interface

Press RETURN to get started.

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name programmers
Switch(config-vlan)#exit
Switch(config)#vlan 3
Switch(config-vlan)#name accountants
Switch(config-vlan)#exit
Switch(config)#interface FastEthernet 0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
Switch(config-if)#exit
Switch(config)#interface FastEthernet 1/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#interface FastEthernet 2/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#interface FastEthernet 3/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#show
```

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Cisco Packet Tracer

File Edit Options View Tools Extensions Window Help

Logical Physical x: 487, y: 470

Time: 00:03:51

Scenario 0

File Last Status

Toggle PDU List Window

Switch0

Physical Config CLI Attributes

IOS Command Line Interface

Cisco WS-CSwitch-PT (R312300) processor (revision C0) with 21039K bytes of memory.  
Processor board ID F8041020WC  
Running Standard Image  
6 FastEthernet/IEEE 802.3 interface(s)  
63488K bytes of flash-simulated non-volatile configuration memory.  
Base ethernet MAC Address: 000A.F379.87E3  
Motherboard assembly number: 73-5781-09  
Power supply part number: 34-0945-01  
Motherboard serial number: FOC04100432  
Power supply serial number: DAB0609127D  
Model revision number: C0  
Motherboard revision number: A0  
Model number: WS-CSwitch-PT  
System serial number: F8K041020WC

Cisco Internetwork Operating System Software  
IOS (tm) PT3000 Software (PT3000-IQ4L2-M), Version 12.1(22)EA4, RELEASE SOFTWARE (fc1)  
Copyright (c) 1996-2004 by Cisco Systems, Inc.  
Compiled Fri 12-May-04 17:19 by pt\_team

Press RETURN to get started!

```
Switch>
%LINK-3-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINK-3-CHANGED: Interface FastEthernet1/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/1, changed state to up
%LINK-3-CHANGED: Interface FastEthernet2/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet2/1, changed state to up
%LINK-3-CHANGED: Interface FastEthernet3/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet3/1, changed state to up
```

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