

Лабораторная работа №15

Динамическая маршрутизация.

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НПИБД-02-21

Открытие проекта

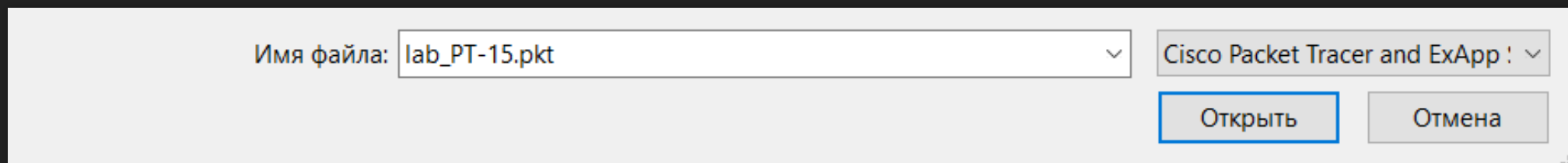
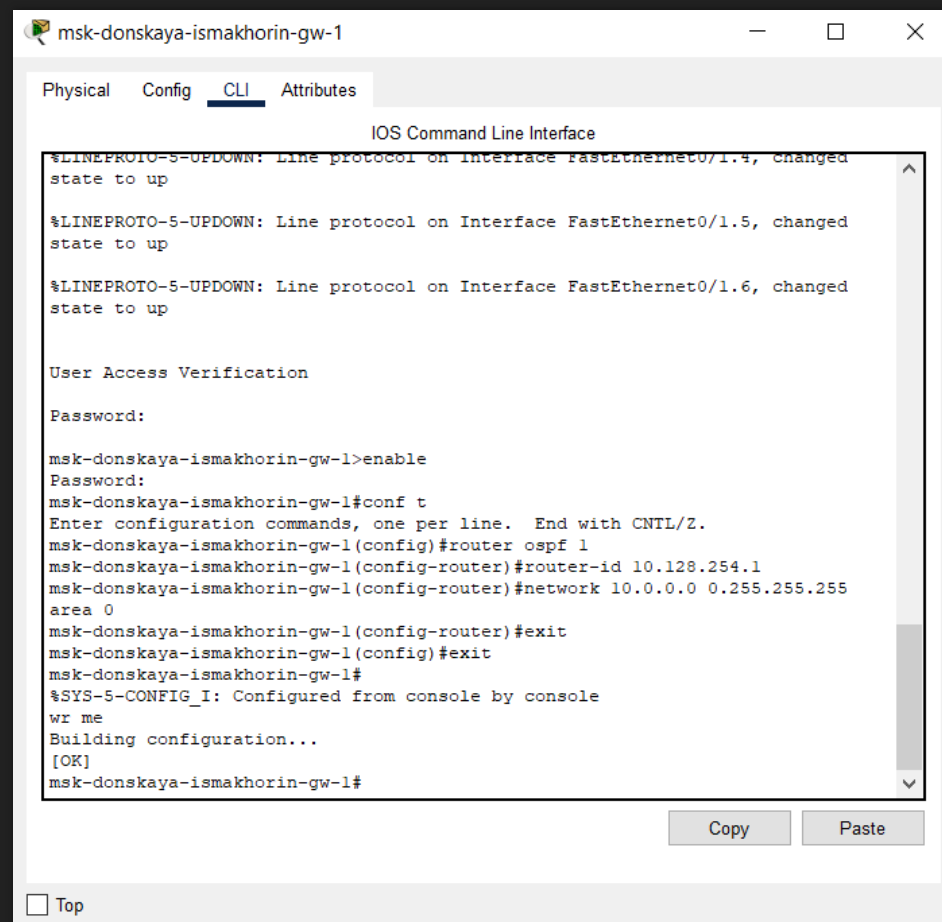


Рис. 1.1. Открытие проекта lab_PT-15.pkt.

Настройка OSPF



The screenshot shows a terminal window titled "msk-donskaya-ismakhorin-gw-1" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following sequence of commands and messages:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1.4, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1.5, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1.6, changed state to up

User Access Verification

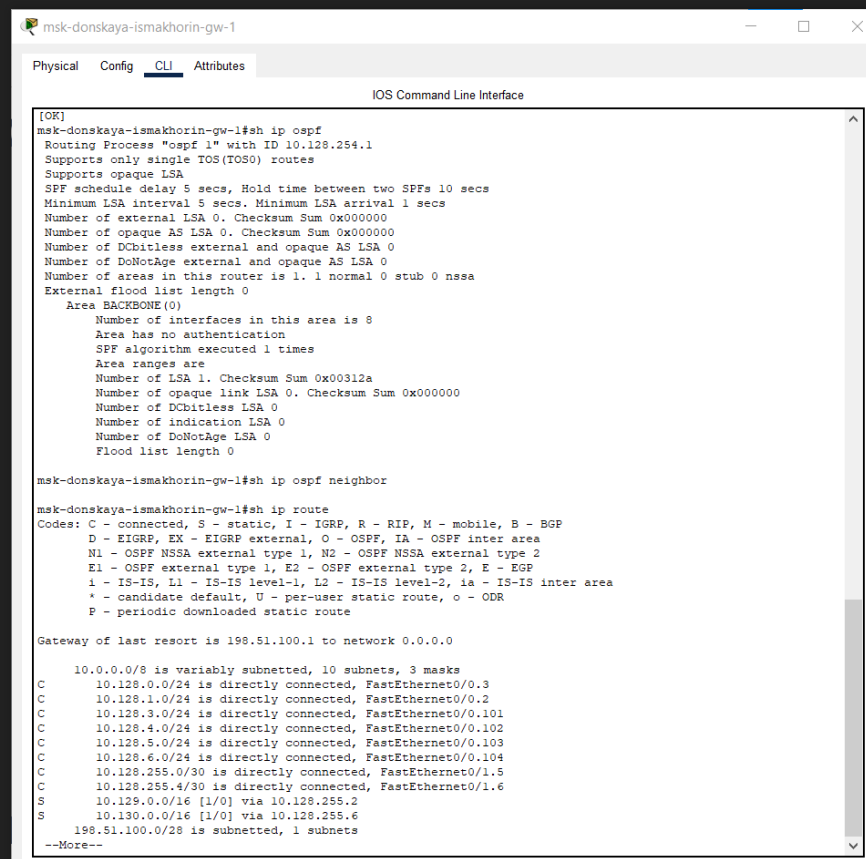
Password:

msk-donskaya-ismakhorin-gw-1>enable
Password:
msk-donskaya-ismakhorin-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-ismakhorin-gw-1(config)#router ospf 1
msk-donskaya-ismakhorin-gw-1(config-router)#router-id 10.128.254.1
msk-donskaya-ismakhorin-gw-1(config-router)#network 10.0.0.0 0.255.255.255
area 0
msk-donskaya-ismakhorin-gw-1(config-router)#exit
msk-donskaya-ismakhorin-gw-1(config)#exit
msk-donskaya-ismakhorin-gw-1#
%SYS-5-CONFIG_I: Configured from console by console
wr me
Building configuration...
[OK]
msk-donskaya-ismakhorin-gw-1#
```

At the bottom of the window, there are "Copy" and "Paste" buttons, and a "Top" button with a checkbox.

Рис. 1.2. Настройка OSPF на маршрутизаторе msk-donskaya-ismakhorin-gw-1 (включение процесса OSPF, назначение областей интерфейсам).

Проверка OSPF



```
msk-donskaya-ismakhorin-gw-1
Physical Config CLI Attributes
IOS Command Line Interface

[OK]
msk-donskaya-ismakhorin-gw-1#sh ip ospf
Routing Process "ospf 1" with ID 10.128.254.1
Supports only single TOS(TOS0) routes
Supports opaque LSA
SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
Number of external LSA 0. Checksum Sum 0x000000
Number of opaque AS LSA 0. Checksum Sum 0x000000
Number of DCbitless external and opaque AS LSA 0
Number of DoNotAge external and opaque AS LSA 0
Number of areas in this router is 1. 1 normal 0 stub 0 nssa
External flood list length 0
Area BACKBONE(0)
Number of interfaces in this area is 8
Area has no authentication
SPF algorithm executed 1 times
Area ranges are
Number of LSA 1. Checksum Sum 0x00312a
Number of opaque link LSA 0. Checksum Sum 0x000000
Number of DCbitless LSA 0
Number of indication LSA 0
Number of DoNotAge LSA 0
Flood list length 0

msk-donskaya-ismakhorin-gw-1#sh ip ospf neighbor

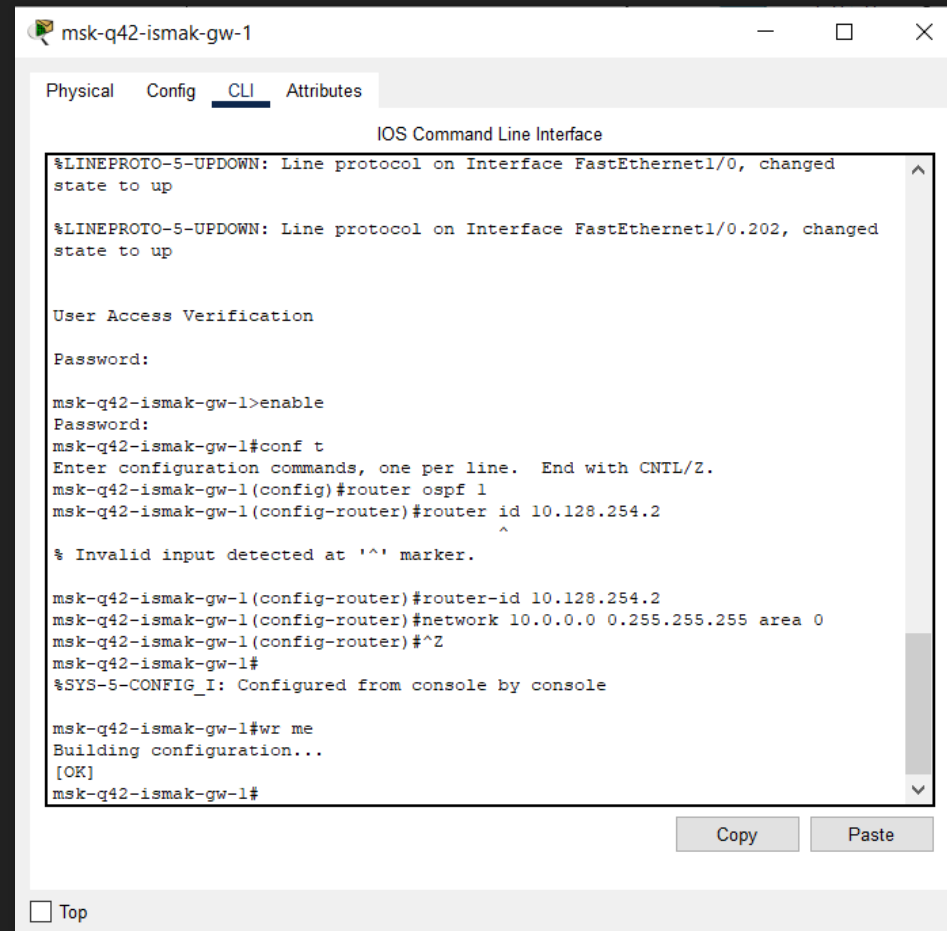
msk-donskaya-ismakhorin-gw-1#sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
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 198.51.100.1 to network 0.0.0.0

10.0.0.0/8 is variably subnetted, 10 subnets, 3 masks
C 10.128.0.0/24 is directly connected, FastEthernet0/0.3
C 10.128.1.0/24 is directly connected, FastEthernet0/0.2
C 10.128.3.0/24 is directly connected, FastEthernet0/0.101
C 10.128.4.0/24 is directly connected, FastEthernet0/0.102
C 10.128.5.0/24 is directly connected, FastEthernet0/0.103
C 10.128.6.0/24 is directly connected, FastEthernet0/0.104
C 10.128.255.0/30 is directly connected, FastEthernet0/1.5
C 10.128.255.4/30 is directly connected, FastEthernet0/1.6
S 10.129.0.0/16 [1/0] via 10.128.255.2
S 10.130.0.0/16 [1/0] via 10.128.255.6
198.51.100.0/28 is subnetted, 1 subnets
--More--
```

Рис. 1.3. Проверка состояния протокола OSPF на маршрутизаторе msk-donskaya-ismakhorin-gw-1 (просмотр статуса всех соседей в заданном сегменте, вывод информации из таблицы маршрутизации).

Настройка оборудования



```
msk-q42-ismak-gw-1
Physical Config CLI Attributes
IOS Command Line Interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed
state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0.202, changed
state to up
User Access Verification
Password:
msk-q42-ismak-gw-1>enable
Password:
msk-q42-ismak-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-q42-ismak-gw-1(config)#router ospf 1
msk-q42-ismak-gw-1(config-router)#router id 10.128.254.2
^
% Invalid input detected at '^' marker.
msk-q42-ismak-gw-1(config-router)#router-id 10.128.254.2
msk-q42-ismak-gw-1(config-router)#network 10.0.0.0 0.255.255.255 area 0
msk-q42-ismak-gw-1(config-router)#^Z
msk-q42-ismak-gw-1#
%SYS-5-CONFIG_I: Configured from console by console
msk-q42-ismak-gw-1#wr me
Building configuration...
[OK]
msk-q42-ismak-gw-1#
```

Рис. 1.4. Настройка маршрутизатора msk-q42-ismak-gw-1.

Настройка оборудования

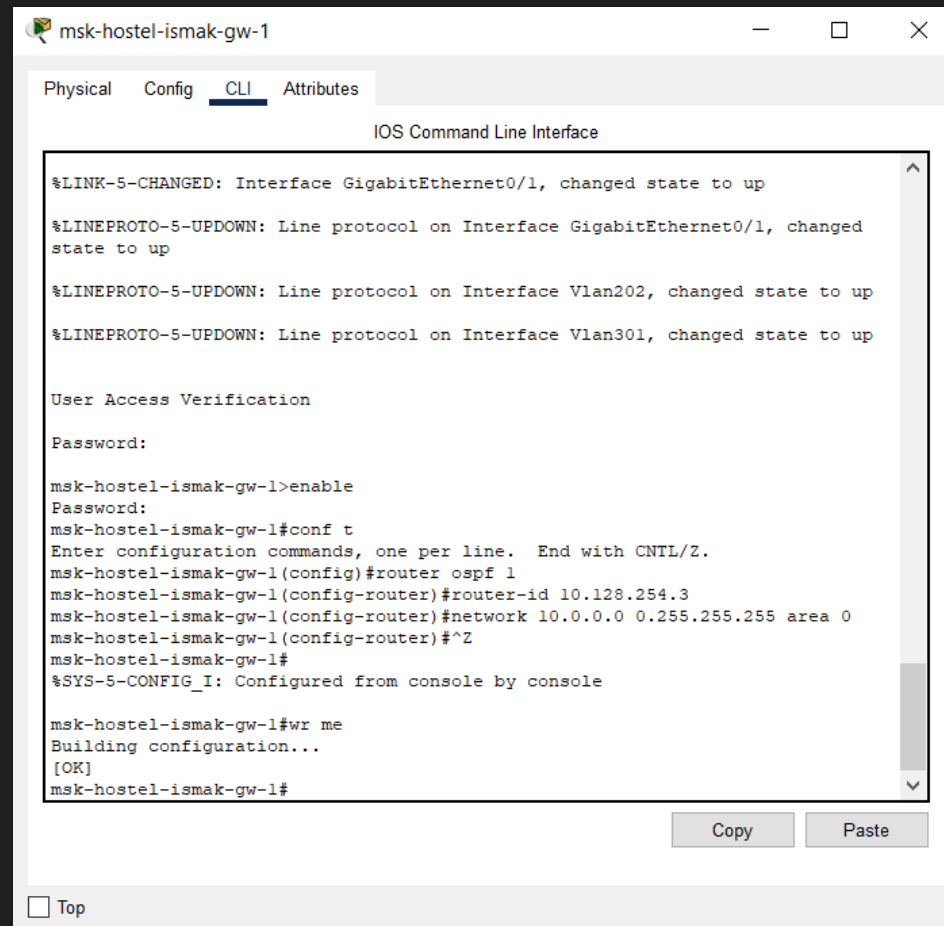
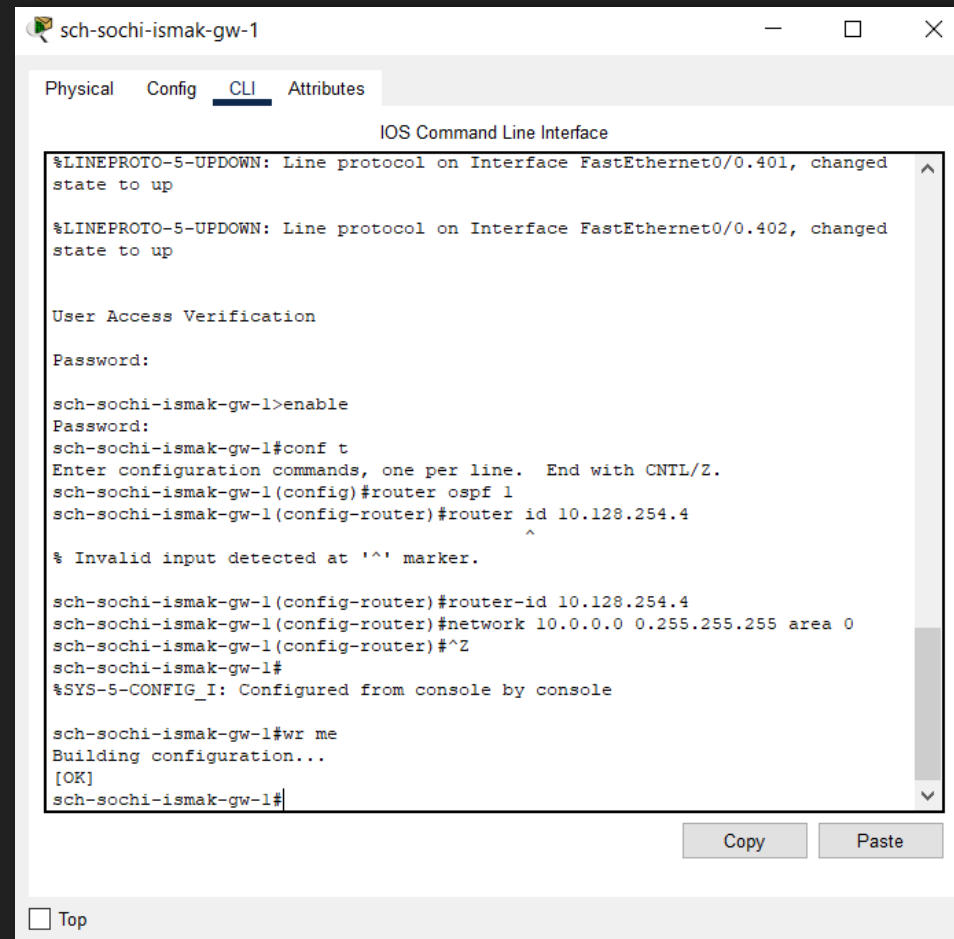


Рис. 1.5. Настройка маршрутизирующего коммутатора msk-hostel-ismak-gw-1.

Настройка оборудования



The screenshot shows a terminal window titled 'sch-sochi-ismak-gw-1' with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the 'IOS Command Line Interface'. The terminal output shows the following sequence of commands and responses:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.401, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.402, changed state to up

User Access Verification

Password:

sch-sochi-ismak-gw-1>enable
Password:
sch-sochi-ismak-gw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
sch-sochi-ismak-gw-1(config)#router ospf 1
sch-sochi-ismak-gw-1(config-router)#router id 10.128.254.4
sch-sochi-ismak-gw-1(config-router)#^
% Invalid input detected at '^' marker.

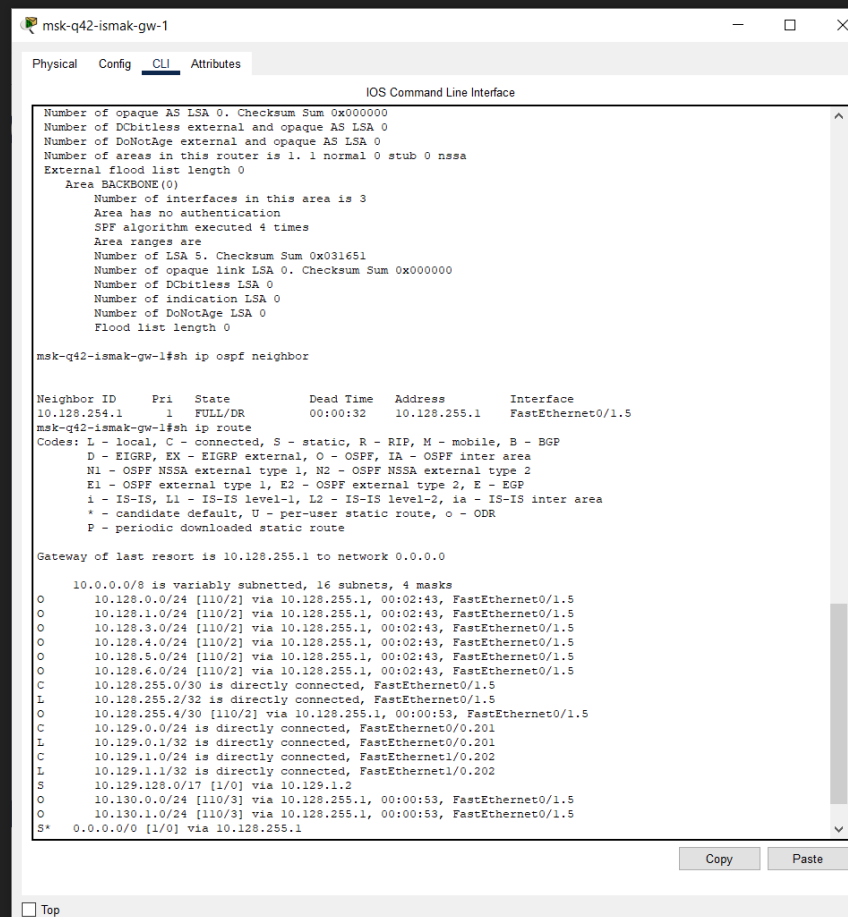
sch-sochi-ismak-gw-1(config-router)#router-id 10.128.254.4
sch-sochi-ismak-gw-1(config-router)#network 10.0.0.0 0.255.255.255 area 0
sch-sochi-ismak-gw-1(config-router)#^Z
sch-sochi-ismak-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

sch-sochi-ismak-gw-1#wr me
Building configuration...
[OK]
sch-sochi-ismak-gw-1#
```

At the bottom of the window, there are 'Copy' and 'Paste' buttons, and a 'Top' button with a checkbox.

Рис. 1.6. Настройка маршрутизатора sch-sochi-ismak-gw-1.

Проверка OSPF



The screenshot shows a network device CLI window titled "msk-q42-ismak-gw-1". The window has tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, showing the "IOS Command Line Interface".

The output of the command `show ip ospf` is displayed, showing the following information:

- Number of opaque AS LSA 0. Checksum Sum 0x000000
- Number of DCbitless external and opaque AS LSA 0
- Number of DoNotAge external and opaque AS LSA 0
- Number of areas in this router is 1. 1 normal 0 stub 0 nssa
- External flood list length 0
- Area BACKBONE(0)
 - Number of interfaces in this area is 3
 - Area has no authentication
 - SPF algorithm executed 4 times
 - Area ranges are
 - Number of LSA 5. Checksum Sum 0x031651
 - Number of opaque link LSA 0. Checksum Sum 0x000000
 - Number of DCbitless LSA 0
 - Number of indication LSA 0
 - Number of DoNotAge LSA 0
 - Flood list length 0

The output of the command `show ip ospf neighbor` is displayed, showing the following information:

Neighbor ID	Pri	State	Dead Time	Address	Interface
10.128.254.1	1	FULL/DR	00:00:32	10.128.255.1	FastEthernet0/1.5

The output of the command `show ip route` is displayed, showing the following information:

Codes: L - local, C - connected, S - static, 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

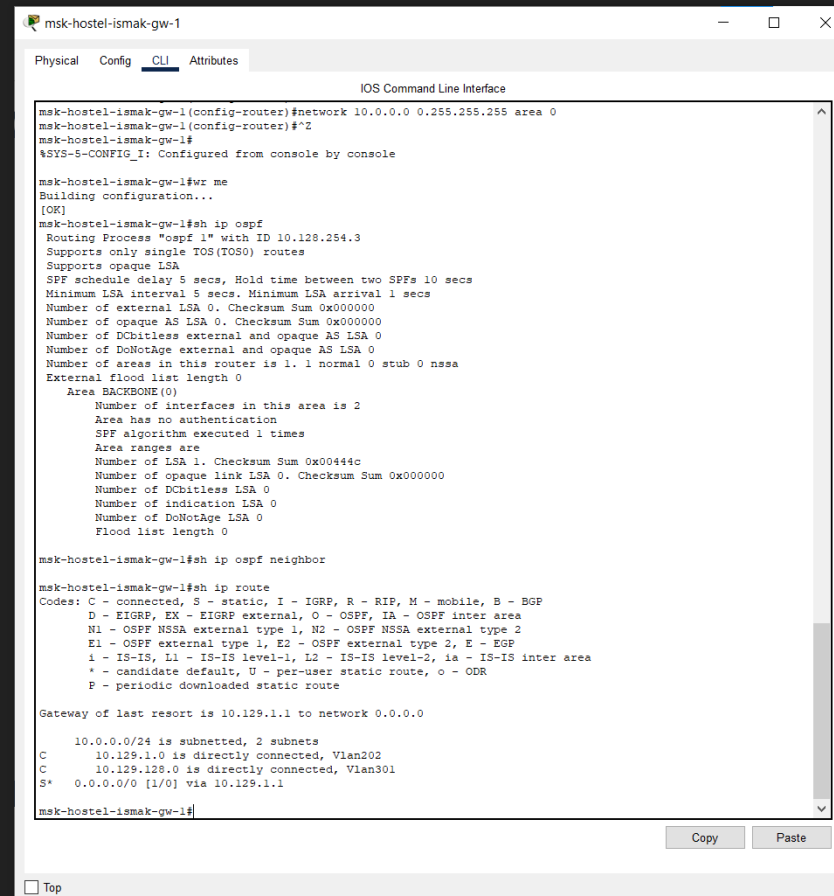
Gateway of last resort is 10.128.255.1 to network 0.0.0.0

10.0.0.0/8 is variably subnetted, 16 subnets, 4 masks

- O 10.128.0.0/24 [110/2] via 10.128.255.1, 00:02:43, FastEthernet0/1.5
- O 10.128.1.0/24 [110/2] via 10.128.255.1, 00:02:43, FastEthernet0/1.5
- O 10.128.3.0/24 [110/2] via 10.128.255.1, 00:02:43, FastEthernet0/1.5
- O 10.128.4.0/24 [110/2] via 10.128.255.1, 00:02:43, FastEthernet0/1.5
- O 10.128.5.0/24 [110/2] via 10.128.255.1, 00:02:43, FastEthernet0/1.5
- O 10.128.6.0/24 [110/2] via 10.128.255.1, 00:02:43, FastEthernet0/1.5
- C 10.128.255.0/30 is directly connected, FastEthernet0/1.5
- L 10.128.255.2/32 is directly connected, FastEthernet0/1.5
- O 10.128.255.4/30 [110/2] via 10.128.255.1, 00:00:53, FastEthernet0/1.5
- C 10.128.0.0/24 is directly connected, FastEthernet0/0.201
- L 10.128.0.1/32 is directly connected, FastEthernet0/0.201
- C 10.128.1.0/24 is directly connected, FastEthernet1/0.202
- L 10.128.1.1/32 is directly connected, FastEthernet1/0.202
- S 10.128.128.0/17 [1/0] via 10.128.1.2
- O 10.130.0.0/24 [110/3] via 10.128.255.1, 00:00:53, FastEthernet0/1.5
- O 10.130.1.0/24 [110/3] via 10.128.255.1, 00:00:53, FastEthernet0/1.5
- S* 0.0.0.0/0 [1/0] via 10.128.255.1

Рис. 1.7. Проверка состояния протокола OSPF на маршрутизаторе msk-q42-ismak-gw-1.

Проверка OSPF



```
msk-hostel-ismak-gw-1
Physical Config CLI Attributes
IOS Command Line Interface
msk-hostel-ismak-gw-1(config-router)#network 10.0.0.0 0.255.255.255 area 0
msk-hostel-ismak-gw-1(config-router)#^Z
msk-hostel-ismak-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-hostel-ismak-gw-1#sh ip ospf
Building configuration...
[OK]
Routing Process "ospf 1" with ID 10.128.254.3
  Supports only single TOS(TOS0) routes
  Supports opaque LSA
  SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
  Minimum LSA interval 5 secs, Minimum LSA arrival 1 secs
  Number of external LSA 0, Checksum Sum 0x00000000
  Number of opaque AS LSA 0, Checksum Sum 0x00000000
  Number of DCbitless external and opaque AS LSA 0
  Number of DoNotAge external and opaque AS LSA 0
  Number of areas in this router is 1, 1 normal 0 stub 0 nssa
  External flood list length 0
    Area BACKBONE(0)
      Number of interfaces in this area is 2
      Area has no authentication
      SPF algorithm executed 1 times
      Area ranges are
        Number of LSA 1, Checksum Sum 0x00444c
        Number of opaque link LSA 0, Checksum Sum 0x00000000
        Number of DCbitless LSA 0
        Number of indication LSA 0
        Number of DoNotAge LSA 0
        Flood list length 0

msk-hostel-ismak-gw-1#sh ip ospf neighbor

msk-hostel-ismak-gw-1#sh 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

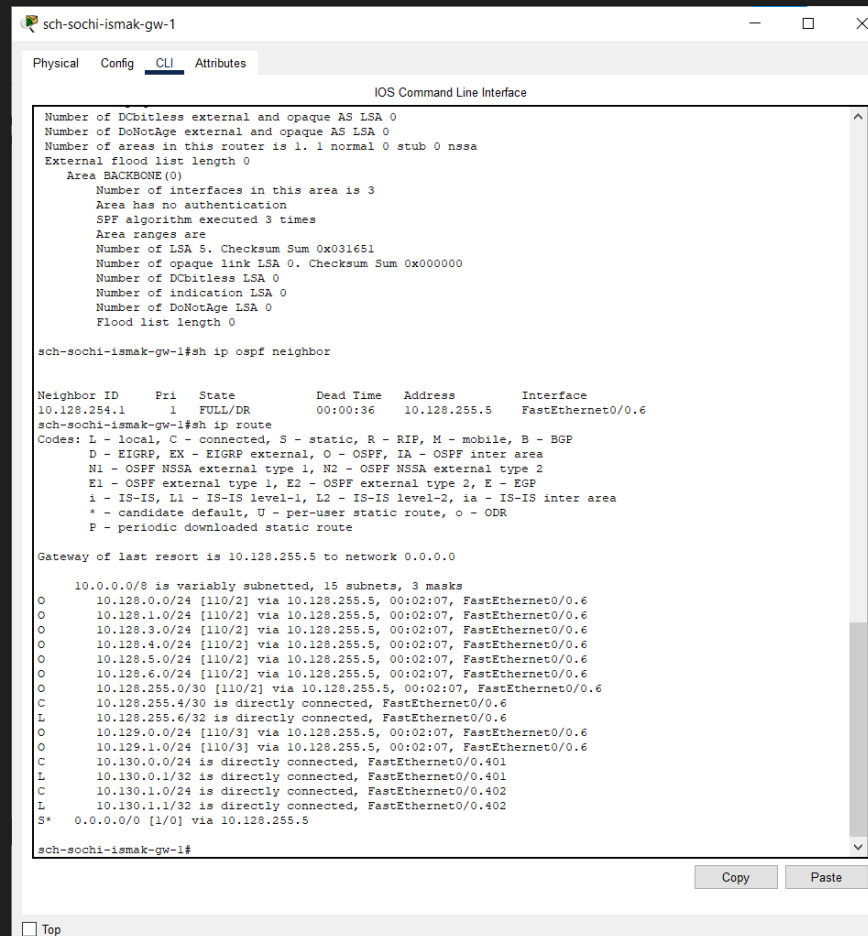
Gateway of last resort is 10.129.1.1 to network 0.0.0.0

    10.0.0.0/24 is subnetted, 2 subnets
C       10.129.1.0 is directly connected, Vlan202
C       10.129.128.0 is directly connected, Vlan301
S*    0.0.0.0/0 [1/0] via 10.129.1.1

msk-hostel-ismak-gw-1#
```

Рис. 1.8. Проверка состояния протокола OSPF на маршрутизирующем коммутаторе msk-hostel-ismak-gw-1.

Проверка OSPF



The screenshot shows a terminal window titled 'sch-sochi-ismak-gw-1' with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the 'IOS Command Line Interface'. The user has entered the command 'show ip ospf neighbor', which has produced a table of OSPF neighbors. Below this, the user has entered 'show ip route', displaying a list of routes. The terminal output includes details about the OSPF process, such as the number of interfaces in the area, the SPF algorithm execution, and the state of various routes.

```
sch-sochi-ismak-gw-1#show ip ospf neighbor

Neighbor ID      Pri  State           Dead Time   Address        Interface
10.128.254.1      1    FULL/DR         00:00:36    10.128.255.5   FastEthernet0/0.6

sch-sochi-ismak-gw-1#show ip route

Codes: L - local, C - connected, S - static, 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

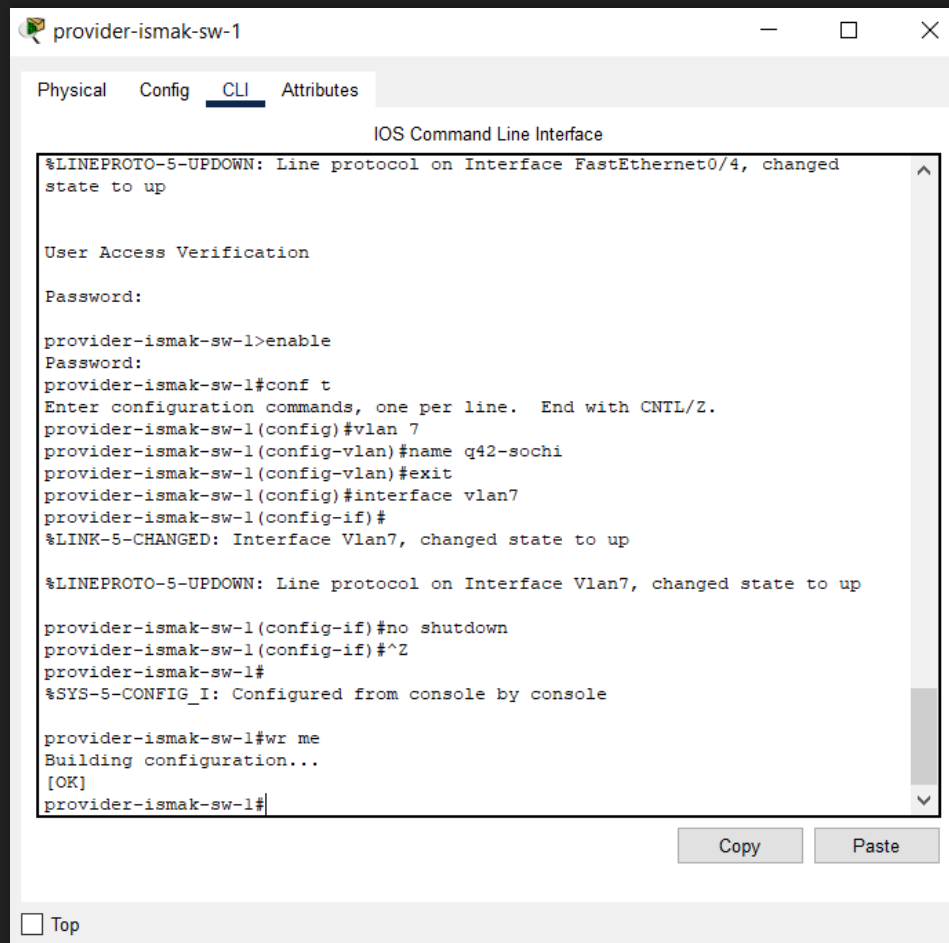
Gateway of last resort is 10.128.255.5 to network 0.0.0.0

10.0.0.0/8 is variably subnetted, 15 subnets, 3 masks
O       10.128.0.0/24 [110/2] via 10.128.255.5, 00:02:07, FastEthernet0/0.6
O       10.128.1.0/24 [110/2] via 10.128.255.5, 00:02:07, FastEthernet0/0.6
O       10.128.3.0/24 [110/2] via 10.128.255.5, 00:02:07, FastEthernet0/0.6
O       10.128.4.0/24 [110/2] via 10.128.255.5, 00:02:07, FastEthernet0/0.6
O       10.128.5.0/24 [110/2] via 10.128.255.5, 00:02:07, FastEthernet0/0.6
O       10.128.6.0/24 [110/2] via 10.128.255.5, 00:02:07, FastEthernet0/0.6
O       10.128.255.0/30 [110/2] via 10.128.255.5, 00:02:07, FastEthernet0/0.6
C       10.128.255.4/30 is directly connected, FastEthernet0/0.6
L       10.128.255.6/32 is directly connected, FastEthernet0/0.6
O       10.129.0.0/24 [110/3] via 10.128.255.5, 00:02:07, FastEthernet0/0.6
O       10.129.1.0/24 [110/3] via 10.128.255.5, 00:02:07, FastEthernet0/0.6
C       10.130.0.0/24 is directly connected, FastEthernet0/0.401
L       10.130.0.1/32 is directly connected, FastEthernet0/0.401
C       10.130.1.0/24 is directly connected, FastEthernet0/0.402
L       10.130.1.1/32 is directly connected, FastEthernet0/0.402
S*      0.0.0.0/0 [1/0] via 10.128.255.5

sch-sochi-ismak-gw-1#
```

Рис. 1.9. Проверка состояния протокола OSPF на маршрутизаторе sch-sochi-ismak-gw-1.

Настройка интерфейсов



The screenshot shows a terminal window titled "provider-ismak-sw-1" with tabs for Physical, Config, CLI (selected), and Attributes. The CLI tab displays the "IOS Command Line Interface" with a scrollable text area containing the following text:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to up

User Access Verification

Password:

provider-ismak-sw-1>enable
Password:
provider-ismak-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
provider-ismak-sw-1(config)#vlan 7
provider-ismak-sw-1(config-vlan)#name q42-sochi
provider-ismak-sw-1(config-vlan)#exit
provider-ismak-sw-1(config)#interface vlan7
provider-ismak-sw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan7, changed state to up

provider-ismak-sw-1(config-if)#no shutdown
provider-ismak-sw-1(config-if)#^Z
provider-ismak-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

provider-ismak-sw-1#wr me
Building configuration...
[OK]
provider-ismak-sw-1#
```

At the bottom of the terminal window, there are "Copy" and "Paste" buttons, and a "Top" button with a checkbox.

Рис. 1. 10. Настройка интерфейсов коммутатора provider-ismak-sw-1.

Настройка оборудования

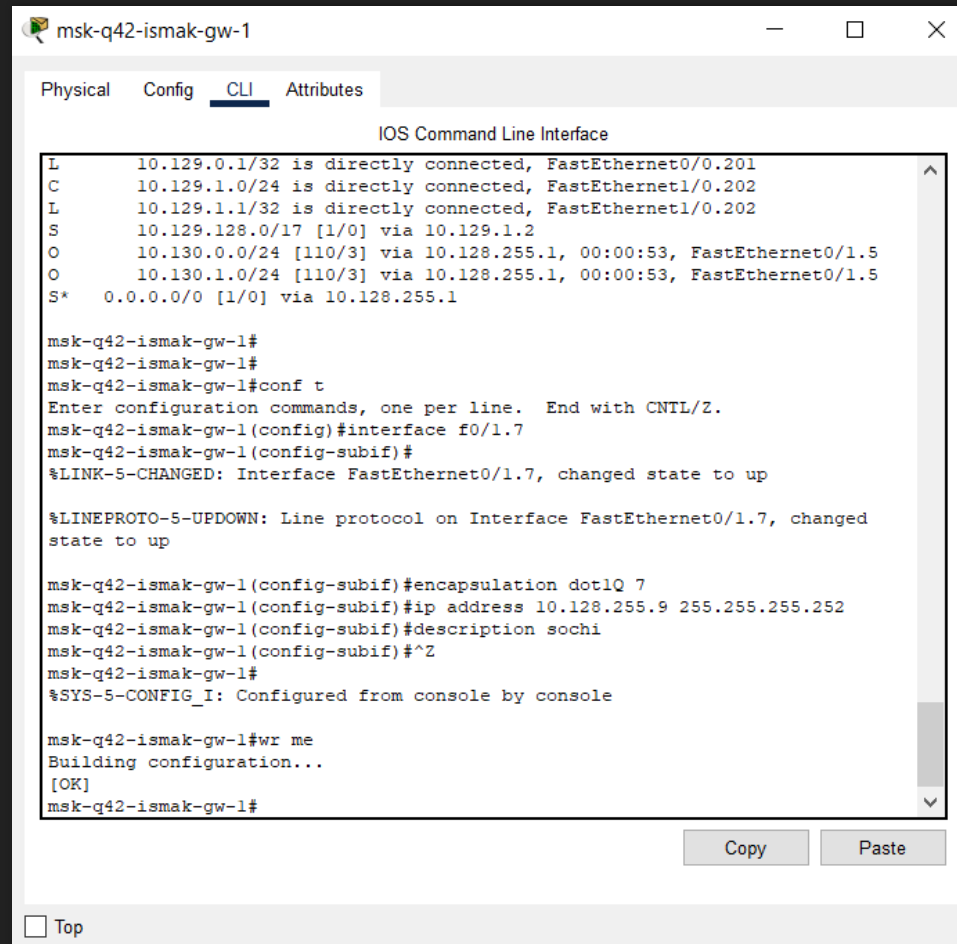
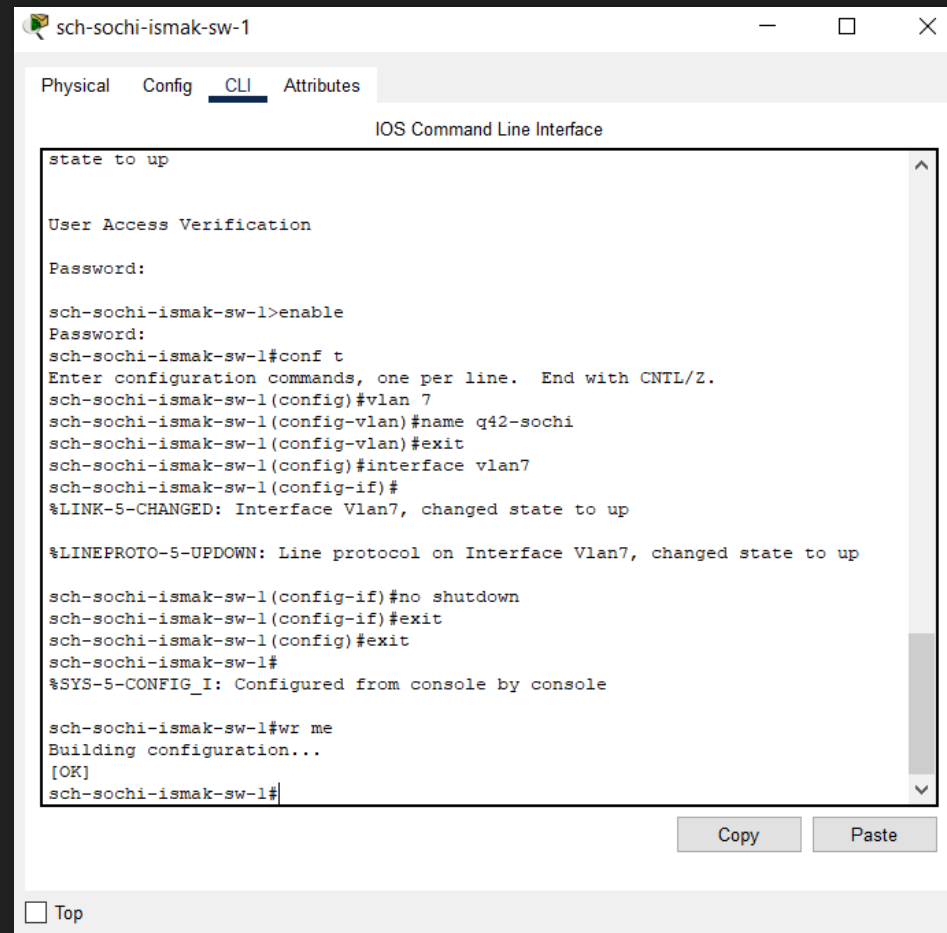


Рис. 1.11. Настройка маршрутизатора msk-q42-ismak-gw-1.

Настройка оборудования



```
state to up

User Access Verification

Password:

sch-sochi-ismak-sw-1>enable
Password:
sch-sochi-ismak-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
sch-sochi-ismak-sw-1(config)#vlan 7
sch-sochi-ismak-sw-1(config-vlan)#name q42-sochi
sch-sochi-ismak-sw-1(config-vlan)#exit
sch-sochi-ismak-sw-1(config)#interface vlan7
sch-sochi-ismak-sw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan7, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan7, changed state to up

sch-sochi-ismak-sw-1(config-if)#no shutdown
sch-sochi-ismak-sw-1(config-if)#exit
sch-sochi-ismak-sw-1(config)#exit
sch-sochi-ismak-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

sch-sochi-ismak-sw-1#wr me
Building configuration...
[OK]
sch-sochi-ismak-sw-1#
```

Рис. 1.12. Настройка коммутатора sch-sochi-ismak-sw-1.

Настройка оборудования

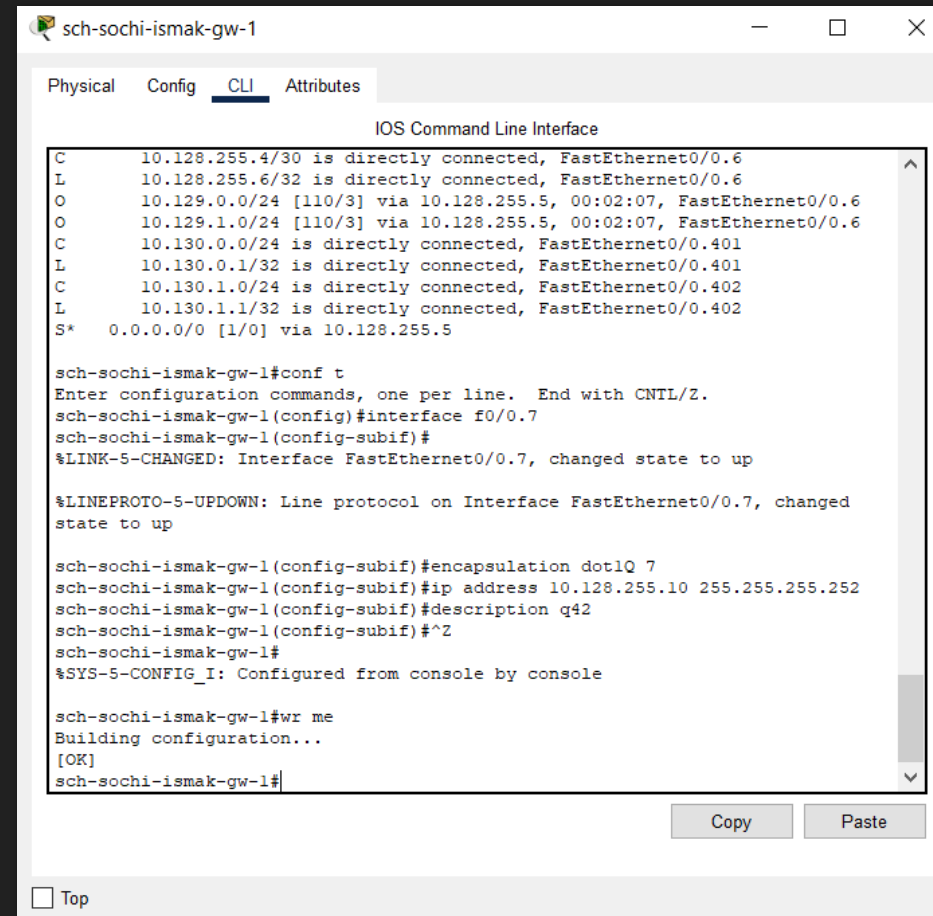
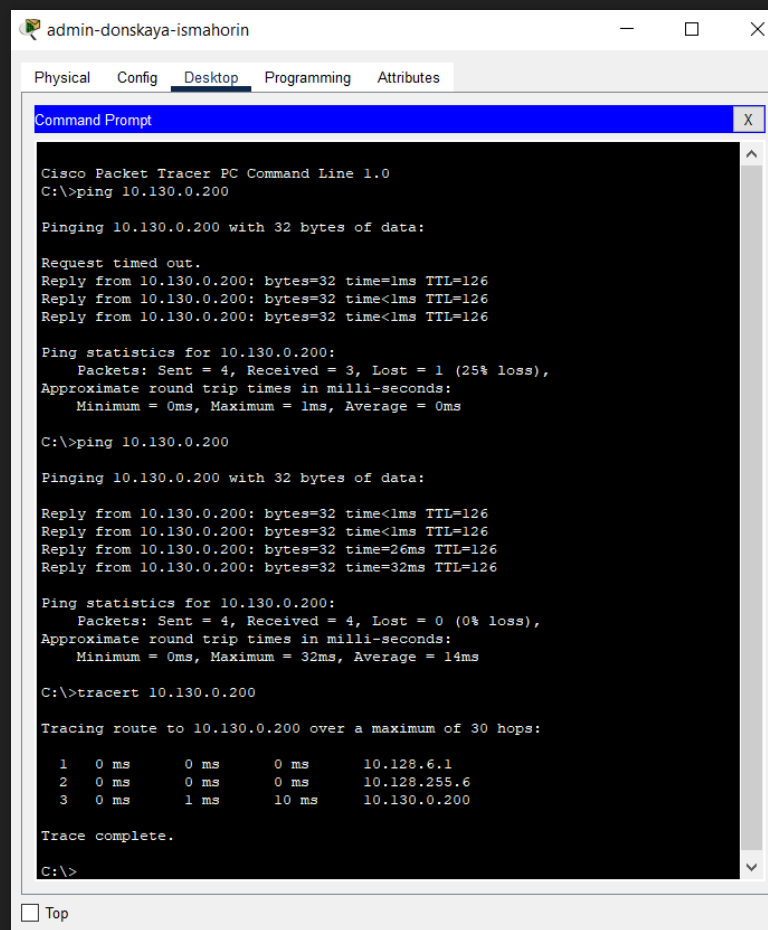


Рис. 1.13. Настройка маршрутизатора sch-sochi-gw-1.

Ping



The screenshot shows a Cisco Packet Tracer PC Command Line window for a device named 'admin-donskaya-ismahorin'. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, showing a Command Prompt window. The Command Prompt displays the results of two ping commands and one traceroute command to the IP address 10.130.0.200.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.130.0.200

Pinging 10.130.0.200 with 32 bytes of data:

Request timed out.
Reply from 10.130.0.200: bytes=32 time<1ms TTL=126
Reply from 10.130.0.200: bytes=32 time<1ms TTL=126
Reply from 10.130.0.200: bytes=32 time<1ms TTL=126

Ping statistics for 10.130.0.200:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 10.130.0.200

Pinging 10.130.0.200 with 32 bytes of data:

Reply from 10.130.0.200: bytes=32 time<1ms TTL=126
Reply from 10.130.0.200: bytes=32 time<1ms TTL=126
Reply from 10.130.0.200: bytes=32 time=26ms TTL=126
Reply from 10.130.0.200: bytes=32 time=32ms TTL=126

Ping statistics for 10.130.0.200:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 32ms, Average = 14ms

C:\>tracert 10.130.0.200

Tracing route to 10.130.0.200 over a maximum of 30 hops:

  1  0 ms    0 ms    0 ms    10.128.6.1
  2  0 ms    0 ms    0 ms    10.128.255.6
  3  0 ms    1 ms    10 ms   10.130.0.200

Trace complete.

C:\>
```

Рис. 1.14. Ping по адресу 10.130.0.200.

Отслеживание пакета

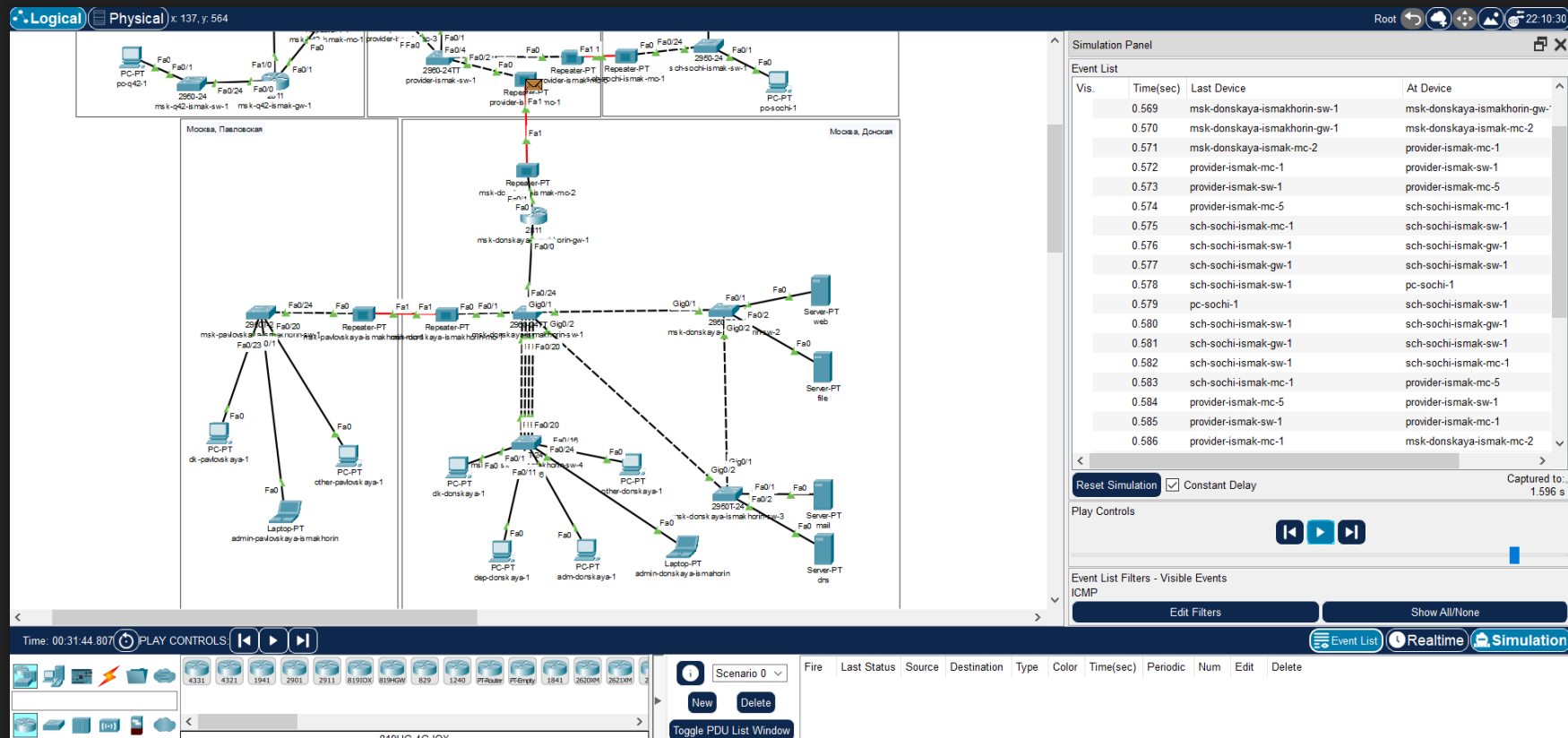


Рис. 1.15. Отслеживание в режиме симуляции движения пакета ICMP с ноутбука администратора сети на Донской в Москве до компьютера пользователя в филиале в г. Сочи.

Отключение vlan 6

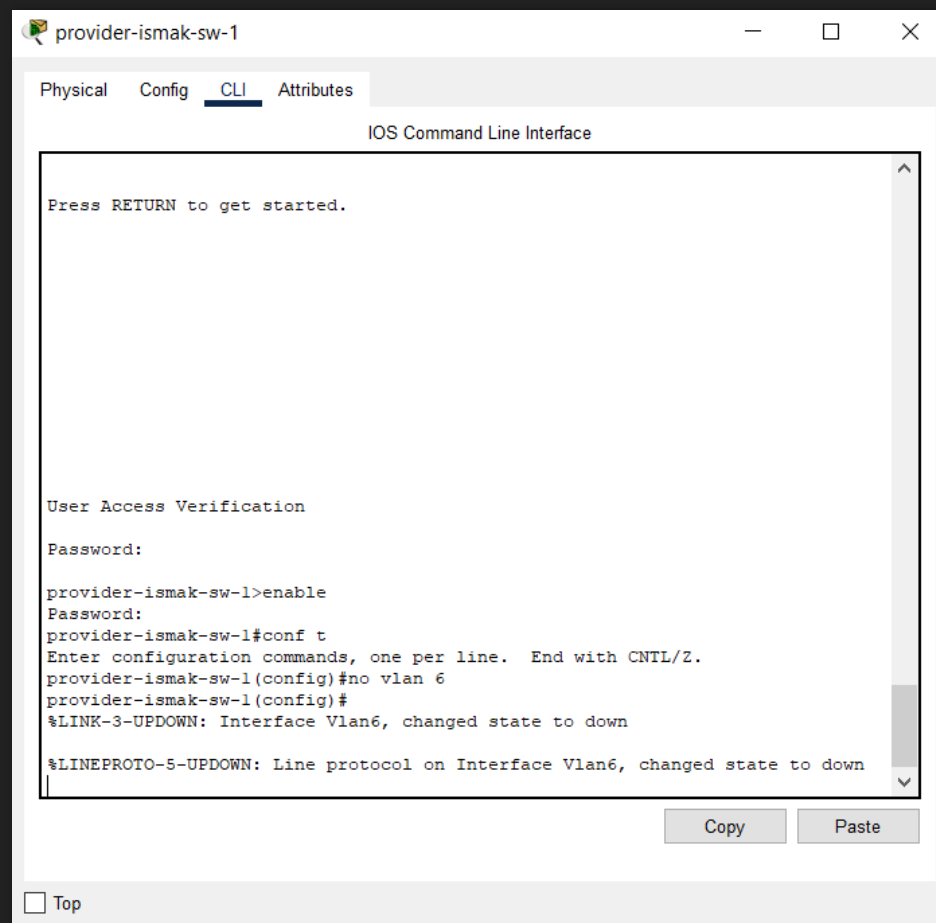


Рис. 1.16. Временное отключение на коммутаторе провайдера vlan 6.

Отслеживание пакета

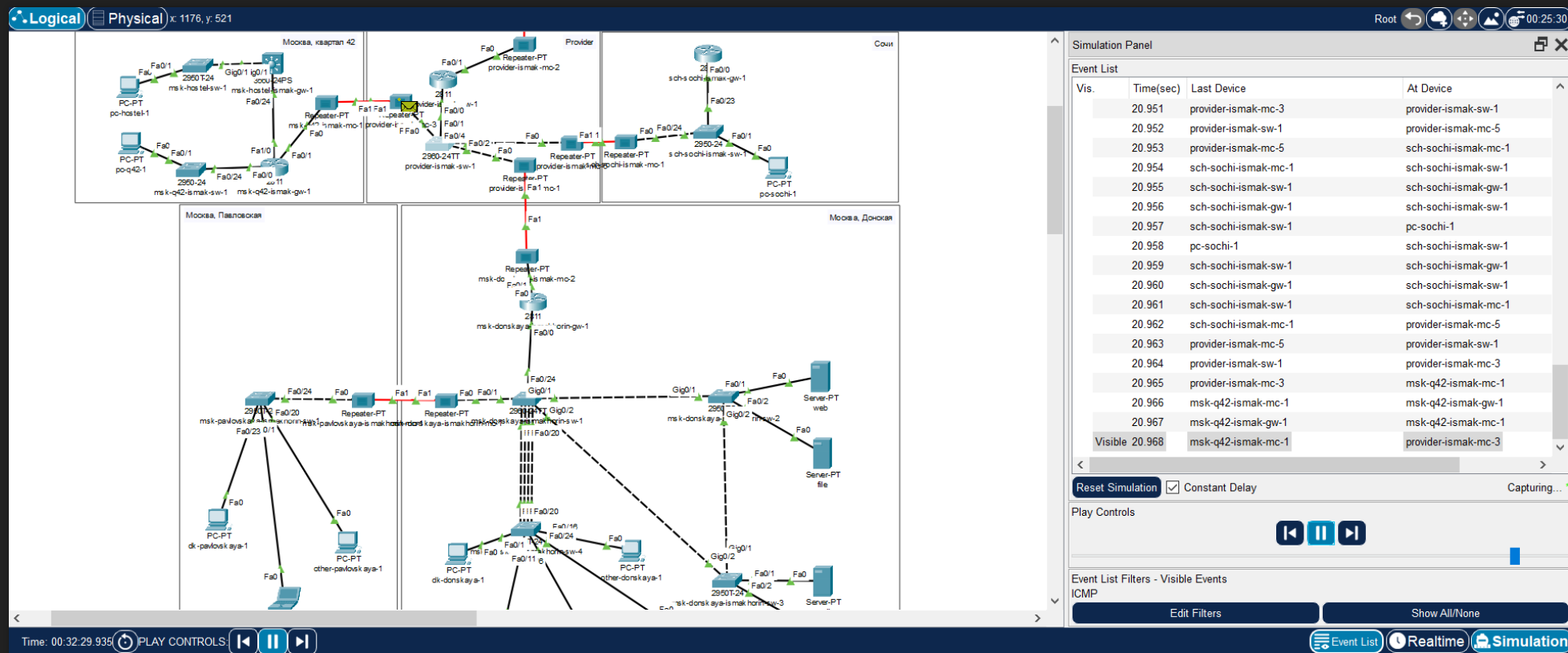
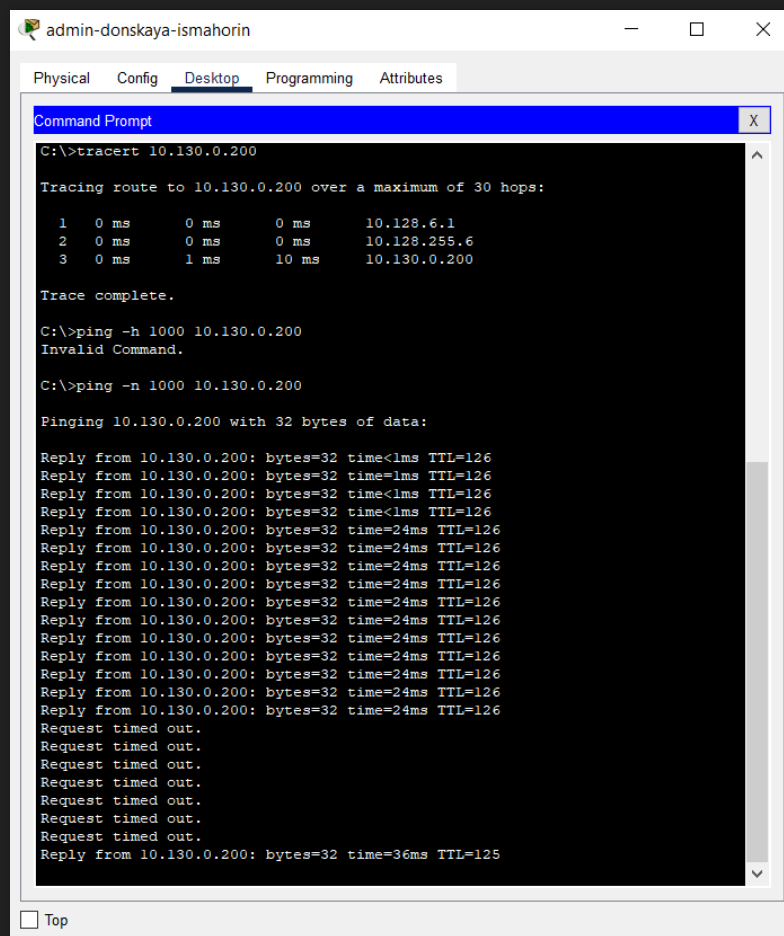


Рис. 1.17. Проверка изменения маршрута прохождения пакета ICMP в режиме симуляции с ноутбука администратора сети на Донской в Москве до компьютера пользователя в филиале в г. Сочи.

Ping



The screenshot shows a Windows Command Prompt window titled "admin-donskaya-ismahorin". The window has tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes", with "Desktop" selected. The Command Prompt shows the following commands and output:

```
C:\>tracert 10.130.0.200

Tracing route to 10.130.0.200 over a maximum of 30 hops:

  1  0 ms    0 ms    0 ms    10.128.6.1
  2  0 ms    0 ms    0 ms    10.128.255.6
  3  0 ms    1 ms    10 ms   10.130.0.200

Trace complete.

C:\>ping -h 1000 10.130.0.200
Invalid Command.

C:\>ping -n 1000 10.130.0.200

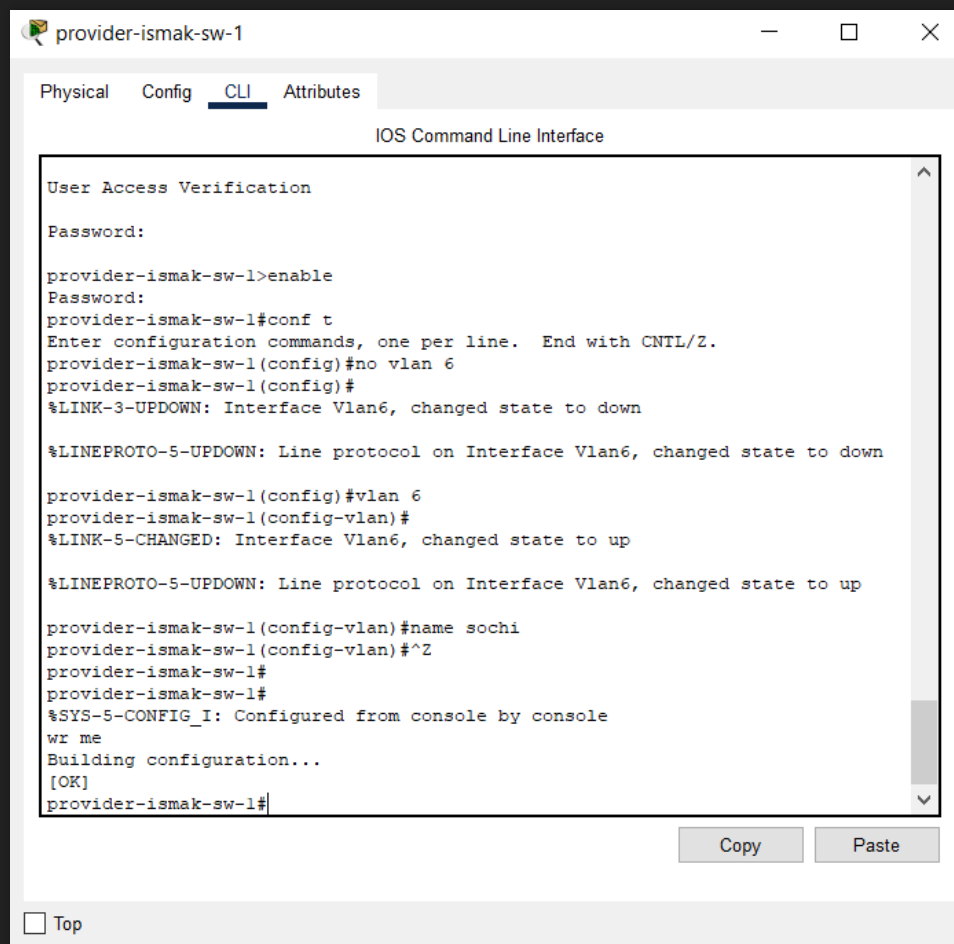
Pinging 10.130.0.200 with 32 bytes of data:

Reply from 10.130.0.200: bytes=32 time<1ms TTL=126
Reply from 10.130.0.200: bytes=32 time=1ms TTL=126
Reply from 10.130.0.200: bytes=32 time<1ms TTL=126
Reply from 10.130.0.200: bytes=32 time<1ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Reply from 10.130.0.200: bytes=32 time=24ms TTL=126
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Reply from 10.130.0.200: bytes=32 time=36ms TTL=125
```

At the bottom of the window, there is a "Top" button.

Рис. 1.18. Потеря пакетов.

Восстановление vlan 6



The screenshot shows a terminal window titled "provider-ismak-sw-1" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following sequence of commands and system messages:

```
User Access Verification
Password:
provider-ismak-sw-1>enable
Password:
provider-ismak-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
provider-ismak-sw-1(config)#no vlan 6
provider-ismak-sw-1(config)#
%LINK-3-UPDOWN: Interface Vlan6, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan6, changed state to down

provider-ismak-sw-1(config)#vlan 6
provider-ismak-sw-1(config-vlan)#
%LINK-5-CHANGED: Interface Vlan6, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan6, changed state to up

provider-ismak-sw-1(config-vlan)#name sochi
provider-ismak-sw-1(config-vlan)#^Z
provider-ismak-sw-1#
provider-ismak-sw-1#
%SYS-5-CONFIG_I: Configured from console by console
wr me
Building configuration...
[OK]
provider-ismak-sw-1#
```

At the bottom of the window, there are "Copy" and "Paste" buttons, and a "Top" button with a checkbox.

Рис. 1.19. Восстановление на коммутаторе провайдера vlan 6.

Отслеживание пакета

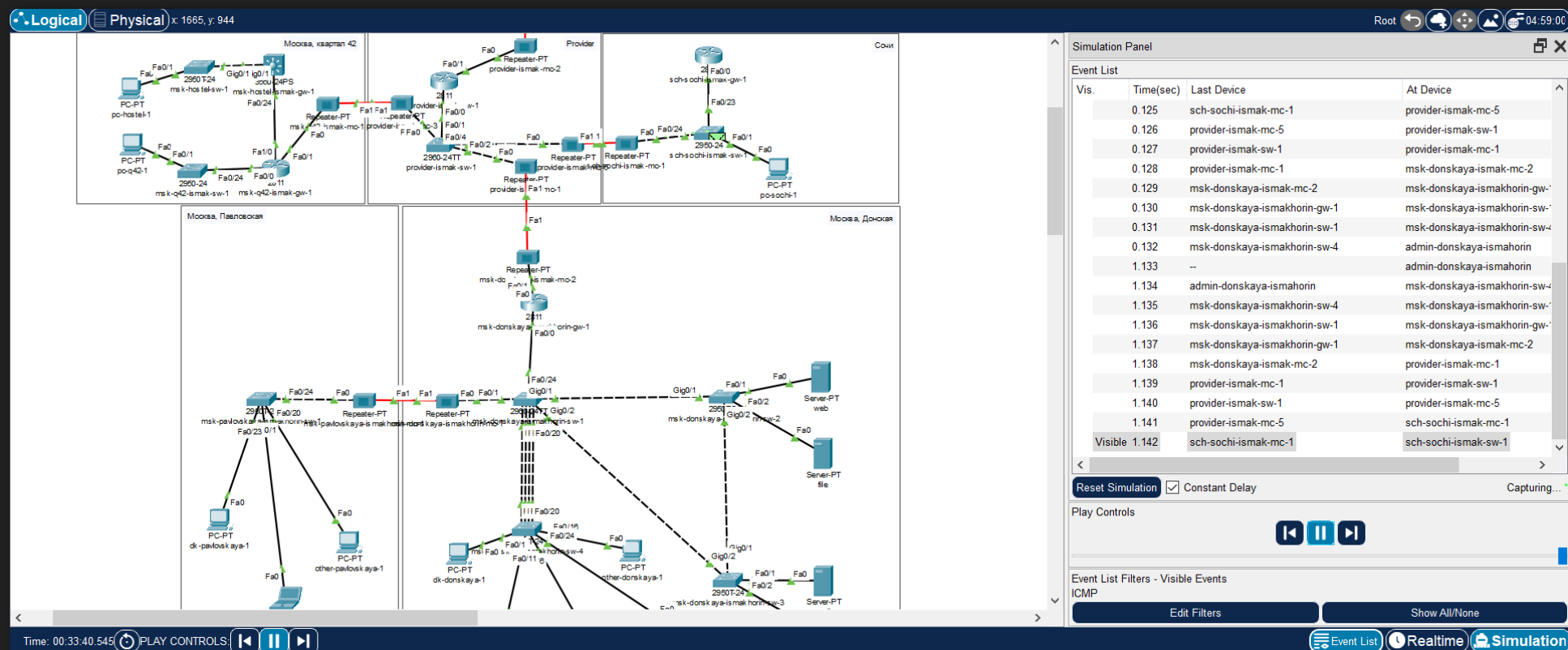


Рис. 1.20. Проверка изменения маршрута прохождения пакета ICMP в режиме симуляции с ноутбука администратора сети на Донской в Москве до компьютера пользователя в филиале в г. Сочи.

Вывод

- В ходе выполнения лабораторной работы мы настроили динамическую маршрутизацию между территориями организации.

Спасибо за внимание!