

Лабораторная работа №14

Статическая маршрутизация в Интернете. Настройка.

Исаев Булат Абубакарович

1132227131

НПИБД-01-22

Открытие проекта

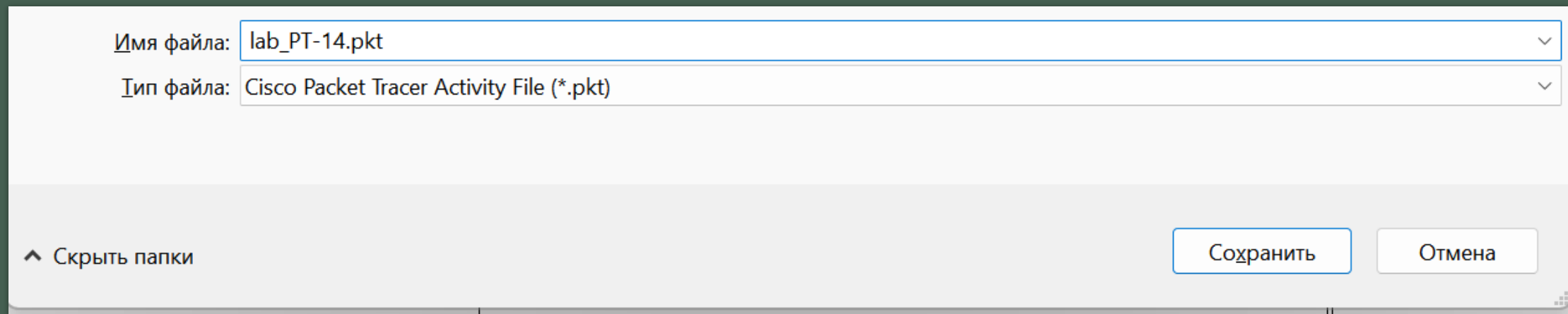
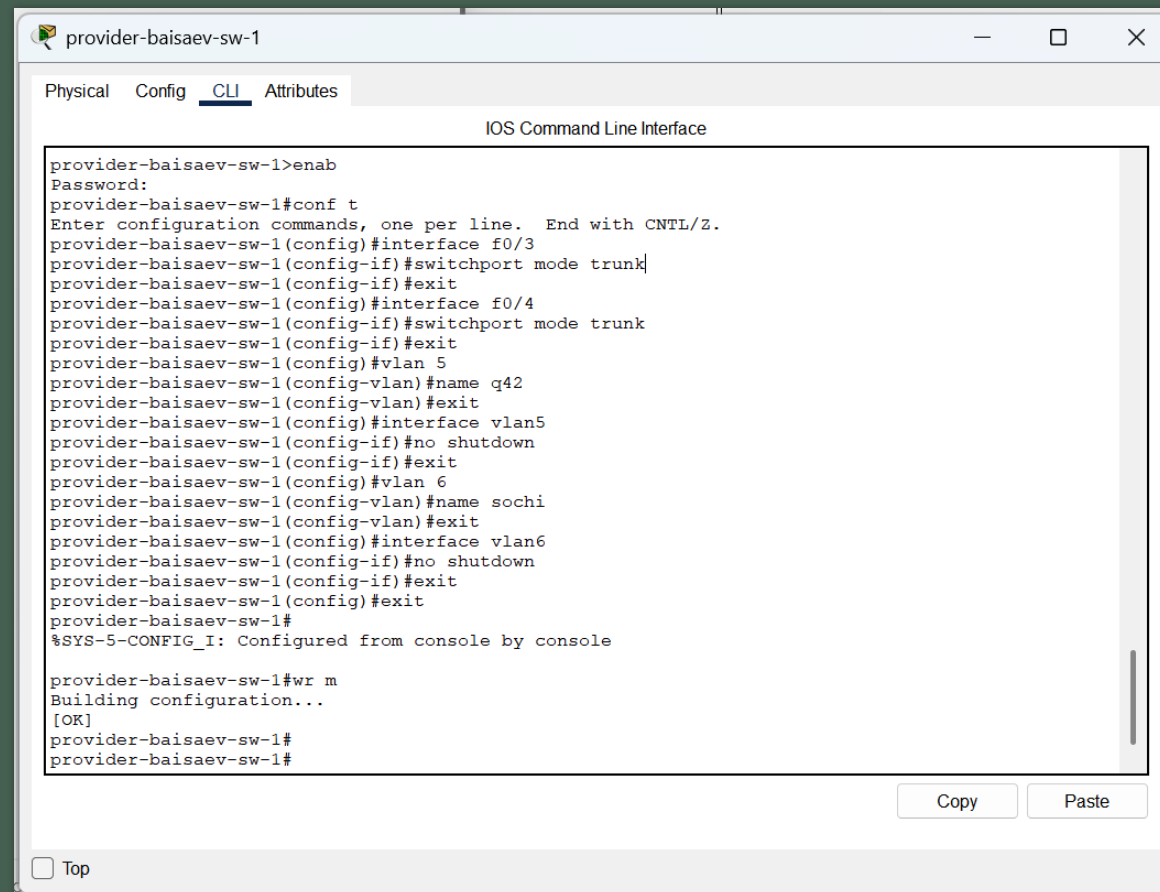


Рис. 1.1. Открытие проекта lab_PT-14.pkt.

Настройка линка между площадками



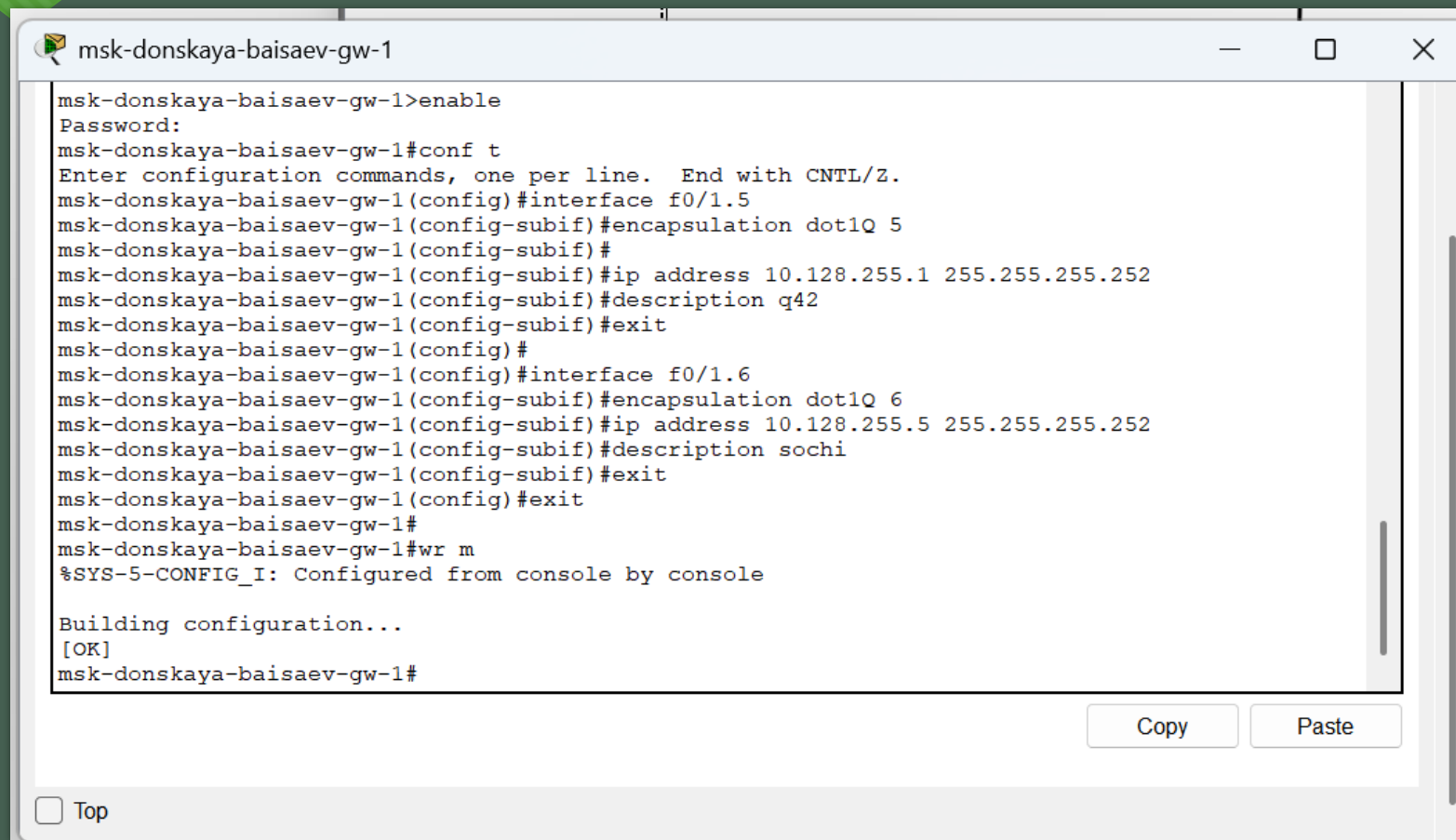
The screenshot shows a window titled 'provider-baisaev-sw-1' with tabs for 'Physical', 'Config', 'CLI', and 'Attributes'. The 'CLI' tab is active, displaying the 'IOS Command Line Interface'. The interface shows a series of commands entered to configure the switch, including enabling the console, setting a password, entering configuration mode, configuring interfaces f0/3 and f0/4 as trunk ports, creating VLANs 5 and 6 with names 'q42' and 'sochi', and saving the configuration. The window also includes 'Copy' and 'Paste' buttons at the bottom right and a 'Top' button at the bottom left.

```
provider-baisaev-sw-1>enab
Password:
provider-baisaev-sw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
provider-baisaev-sw-1(config)#interface f0/3
provider-baisaev-sw-1(config-if)#switchport mode trunk
provider-baisaev-sw-1(config-if)#exit
provider-baisaev-sw-1(config)#interface f0/4
provider-baisaev-sw-1(config-if)#switchport mode trunk
provider-baisaev-sw-1(config-if)#exit
provider-baisaev-sw-1(config)#vlan 5
provider-baisaev-sw-1(config-vlan)#name q42
provider-baisaev-sw-1(config-vlan)#exit
provider-baisaev-sw-1(config)#interface vlan5
provider-baisaev-sw-1(config-if)#no shutdown
provider-baisaev-sw-1(config-if)#exit
provider-baisaev-sw-1(config)#vlan 6
provider-baisaev-sw-1(config-vlan)#name sochi
provider-baisaev-sw-1(config-vlan)#exit
provider-baisaev-sw-1(config)#interface vlan6
provider-baisaev-sw-1(config-if)#no shutdown
provider-baisaev-sw-1(config-if)#exit
provider-baisaev-sw-1(config)#exit
provider-baisaev-sw-1#
%SYS-5-CONFIG_I: Configured from console by console

provider-baisaev-sw-1#wr m
Building configuration...
[OK]
provider-baisaev-sw-1#
provider-baisaev-sw-1#
```

Рис. 1.2. Настройка интерфейсов коммутатора provider-baisaev-sw-1.

Настройка линка между площадками



```
msk-donskaya-baisaev-gw-1>enable
Password:
msk-donskaya-baisaev-gw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
msk-donskaya-baisaev-gw-1(config)#interface f0/1.5
msk-donskaya-baisaev-gw-1(config-subif)#encapsulation dot1Q 5
msk-donskaya-baisaev-gw-1(config-subif)#
msk-donskaya-baisaev-gw-1(config-subif)#ip address 10.128.255.1 255.255.255.252
msk-donskaya-baisaev-gw-1(config-subif)#description q42
msk-donskaya-baisaev-gw-1(config-subif)#exit
msk-donskaya-baisaev-gw-1(config)#
msk-donskaya-baisaev-gw-1(config)#interface f0/1.6
msk-donskaya-baisaev-gw-1(config-subif)#encapsulation dot1Q 6
msk-donskaya-baisaev-gw-1(config-subif)#ip address 10.128.255.5 255.255.255.252
msk-donskaya-baisaev-gw-1(config-subif)#description sochi
msk-donskaya-baisaev-gw-1(config-subif)#exit
msk-donskaya-baisaev-gw-1(config)#exit
msk-donskaya-baisaev-gw-1#
msk-donskaya-baisaev-gw-1#wr m
%SYS-5-CONFIG_I: Configured from console by console

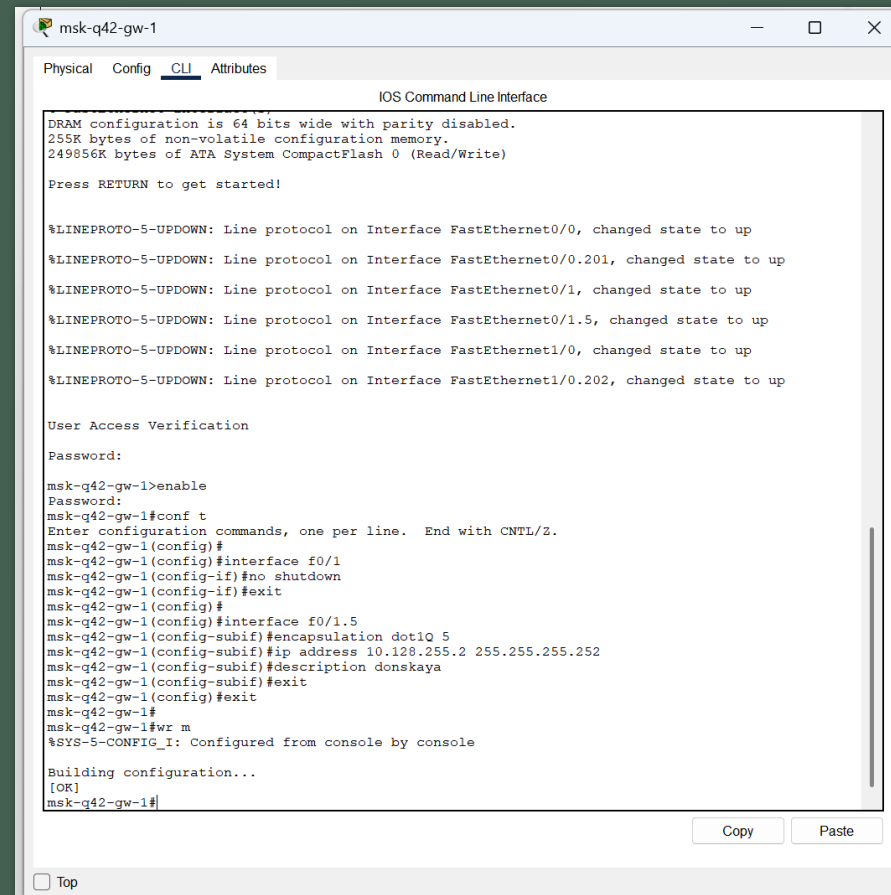
Building configuration...
[OK]
msk-donskaya-baisaev-gw-1#
```

Copy Paste

☐ Top

Рис. 1.3. Настройка интерфейсов маршрутизатора msk-donskaya-baisaev-gw-1.

Настройка линка между площадками



```
msk-q42-gw-1
Physical Config CLI Attributes
IOS Command Line Interface
DRAM configuration is 64 bits wide with parity disabled.
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)
Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.201, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, 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 FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0.202, changed state to up

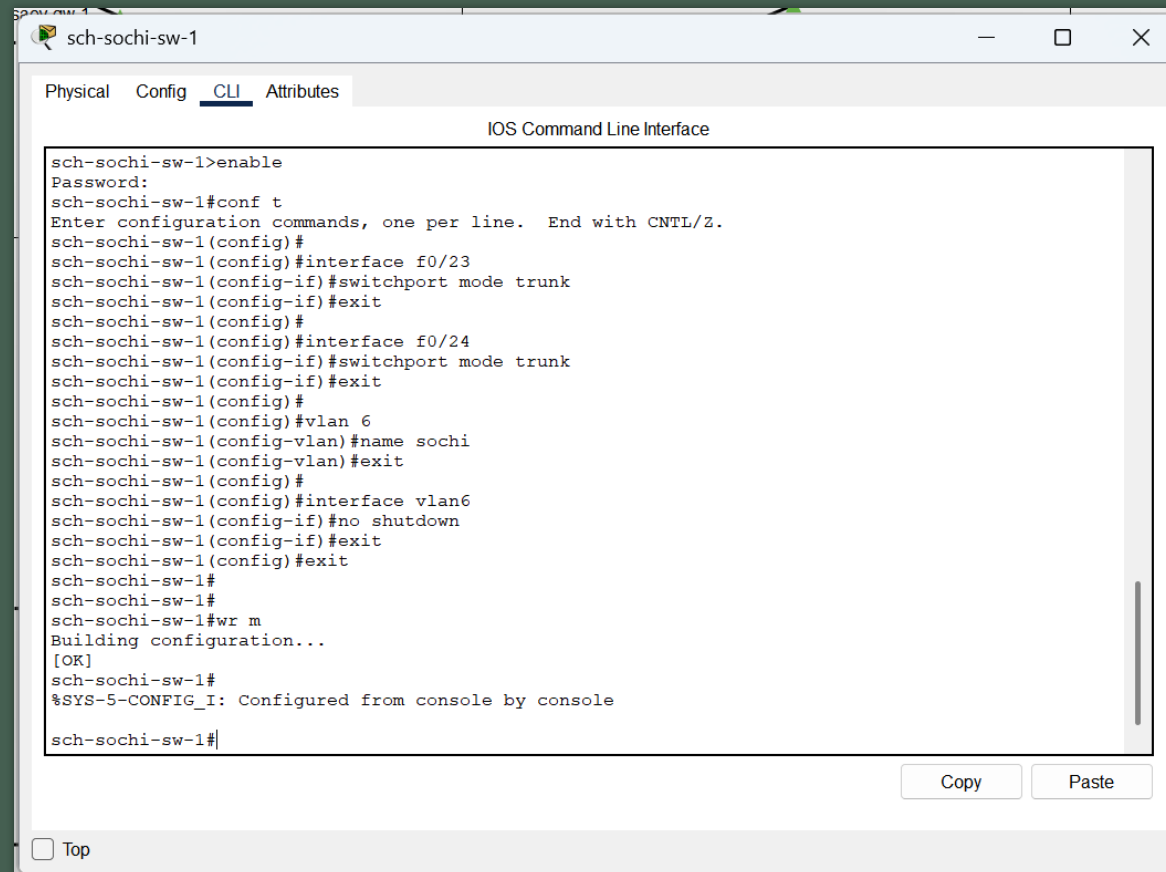
User Access Verification
Password:

msk-q42-gw-1>enable
Password:
msk-q42-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-q42-gw-1(config)#
msk-q42-gw-1(config)#interface f0/1
msk-q42-gw-1(config-if)#no shutdown
msk-q42-gw-1(config-if)#exit
msk-q42-gw-1(config)#
msk-q42-gw-1(config)#interface f0/1.5
msk-q42-gw-1(config-subif)#encapsulation dot1q 5
msk-q42-gw-1(config-subif)#ip address 10.128.255.2 255.255.255.252
msk-q42-gw-1(config-subif)#description donsokaya
msk-q42-gw-1(config-subif)#exit
msk-q42-gw-1(config)#exit
msk-q42-gw-1#
msk-q42-gw-1#wr m
%SYS-5-CONFIG_I: Configured from console by console

Building configuration...
[OK]
msk-q42-gw-1#
```

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

Настройка линка между площадками



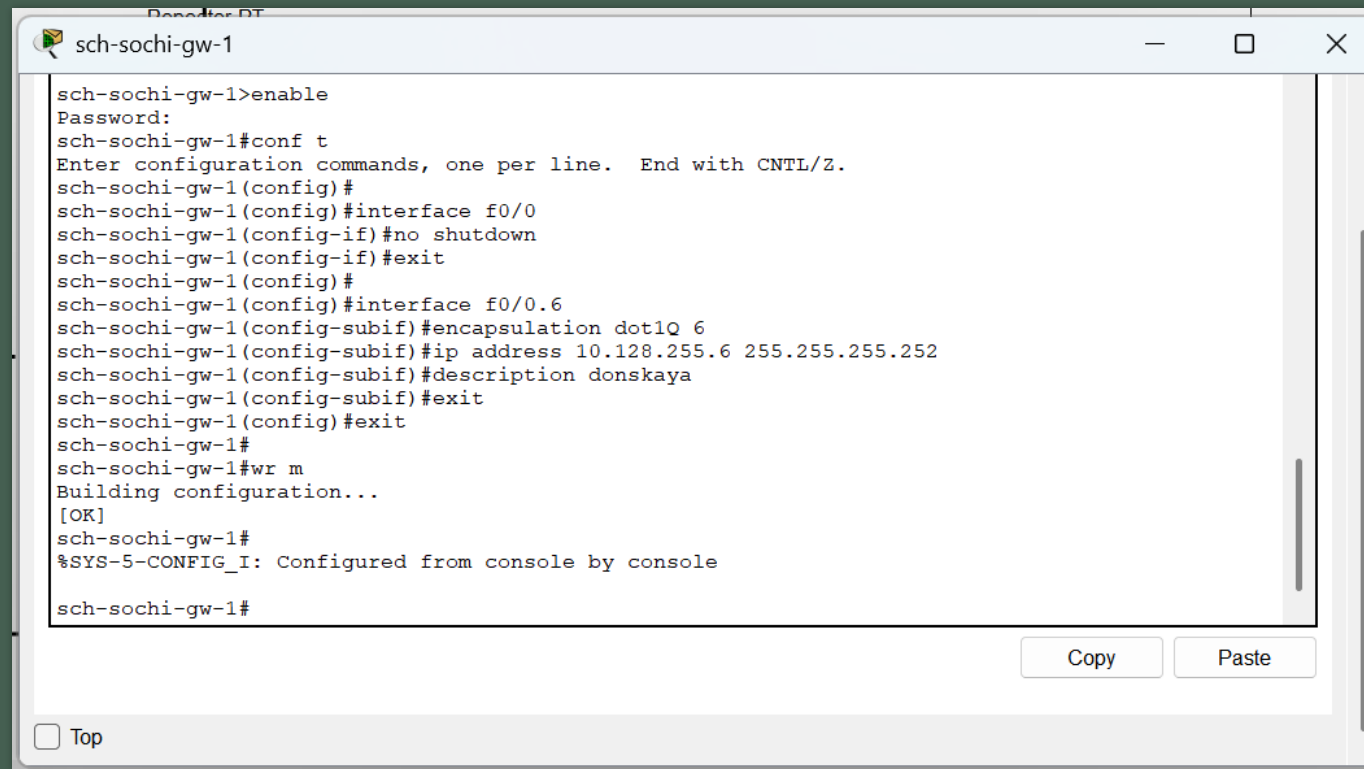
The screenshot shows a web-based configuration interface for a switch named 'sch-sochi-sw-1'. The 'CLI' tab is selected, displaying the 'IOS Command Line Interface'. The terminal shows the following commands and output:

```
sch-sochi-sw-1>enable
Password:
sch-sochi-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
sch-sochi-sw-1(config)#
sch-sochi-sw-1(config)#interface f0/23
sch-sochi-sw-1(config-if)#switchport mode trunk
sch-sochi-sw-1(config-if)#exit
sch-sochi-sw-1(config)#
sch-sochi-sw-1(config)#interface f0/24
sch-sochi-sw-1(config-if)#switchport mode trunk
sch-sochi-sw-1(config-if)#exit
sch-sochi-sw-1(config)#
sch-sochi-sw-1(config)#vlan 6
sch-sochi-sw-1(config-vlan)#name sochi
sch-sochi-sw-1(config-vlan)#exit
sch-sochi-sw-1(config)#
sch-sochi-sw-1(config)#interface vlan6
sch-sochi-sw-1(config-if)#no shutdown
sch-sochi-sw-1(config-if)#exit
sch-sochi-sw-1(config)#exit
sch-sochi-sw-1#
sch-sochi-sw-1#
sch-sochi-sw-1#wr m
Building configuration...
[OK]
sch-sochi-sw-1#
%SYS-5-CONFIG_I: Configured from console by console
sch-sochi-sw-1#
```

At the bottom of the CLI window, there are 'Copy' and 'Paste' buttons. Below the main window, there is a 'Top' button.

Рис. 1.5. Настройка интерфейсов коммутатора sch-sochi-sw-1.

Настройка линка между площадками



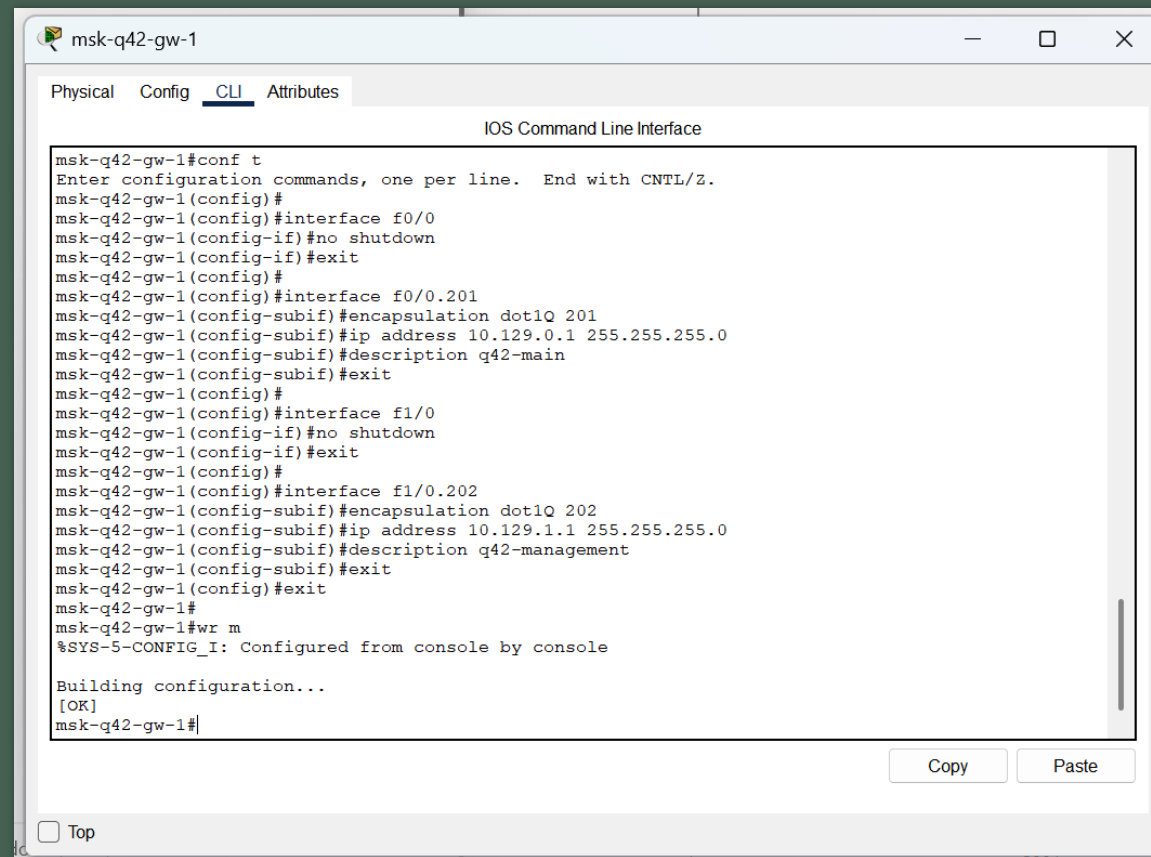
```
sch-sochi-gw-1>enable
Password:
sch-sochi-gw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
sch-sochi-gw-1(config)#
sch-sochi-gw-1(config)#interface f0/0
sch-sochi-gw-1(config-if)#no shutdown
sch-sochi-gw-1(config-if)#exit
sch-sochi-gw-1(config)#
sch-sochi-gw-1(config)#interface f0/0.6
sch-sochi-gw-1(config-subif)#encapsulation dot1Q 6
sch-sochi-gw-1(config-subif)#ip address 10.128.255.6 255.255.255.252
sch-sochi-gw-1(config-subif)#description donskaya
sch-sochi-gw-1(config-subif)#exit
sch-sochi-gw-1(config)#exit
sch-sochi-gw-1#
sch-sochi-gw-1#wr m
Building configuration...
[OK]
sch-sochi-gw-1#
%SYS-5-CONFIG_I: Configured from console by console
sch-sochi-gw-1#
```

Copy Paste

☐ Top

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

Настройка площадки 42-го квартала



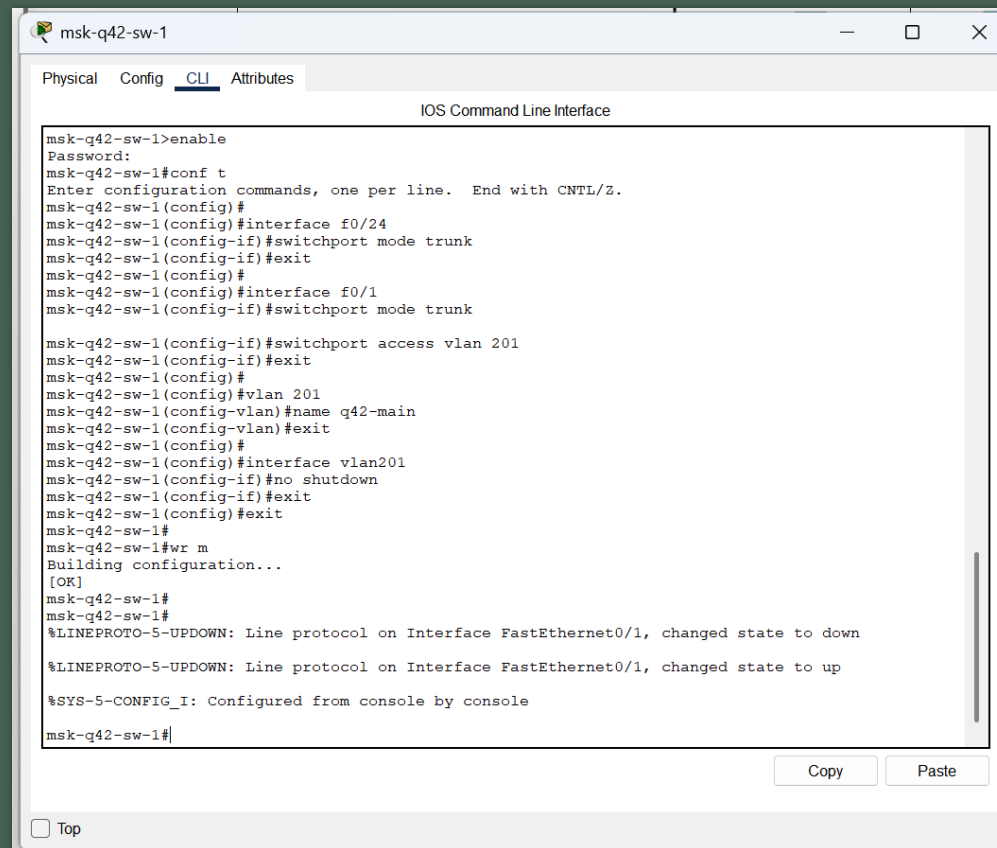
```
msk-q42-gw-1
Physical Config CLI Attributes
IOS Command Line Interface

msk-q42-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-q42-gw-1(config)#
msk-q42-gw-1(config)#interface f0/0
msk-q42-gw-1(config-if)#no shutdown
msk-q42-gw-1(config-if)#exit
msk-q42-gw-1(config)#
msk-q42-gw-1(config)#interface f0/0.201
msk-q42-gw-1(config-subif)#encapsulation dot1Q 201
msk-q42-gw-1(config-subif)#ip address 10.129.0.1 255.255.255.0
msk-q42-gw-1(config-subif)#description q42-main
msk-q42-gw-1(config-subif)#exit
msk-q42-gw-1(config)#
msk-q42-gw-1(config)#interface f1/0
msk-q42-gw-1(config-if)#no shutdown
msk-q42-gw-1(config-if)#exit
msk-q42-gw-1(config)#
msk-q42-gw-1(config)#interface f1/0.202
msk-q42-gw-1(config-subif)#encapsulation dot1Q 202
msk-q42-gw-1(config-subif)#ip address 10.129.1.1 255.255.255.0
msk-q42-gw-1(config-subif)#description q42-management
msk-q42-gw-1(config-subif)#exit
msk-q42-gw-1(config)#exit
msk-q42-gw-1#
msk-q42-gw-1#wr m
%SYS-5-CONFIG_I: Configured from console by console

Building configuration...
[OK]
msk-q42-gw-1#
```

Рис. 1.7. Настройка интерфейсов маршрутизатора msk-q42-gw-1.

Настройка площадки 42-го квартала



The screenshot shows a window titled "msk-q42-sw-1" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal shows the following commands and output:

```
msk-q42-sw-1>enable
Password:
msk-q42-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-q42-sw-1(config)#
msk-q42-sw-1(config)#interface f0/24
msk-q42-sw-1(config-if)#switchport mode trunk
msk-q42-sw-1(config-if)#exit
msk-q42-sw-1(config)#
msk-q42-sw-1(config)#interface f0/1
msk-q42-sw-1(config-if)#switchport mode trunk

msk-q42-sw-1(config-if)#switchport access vlan 201
msk-q42-sw-1(config-if)#exit
msk-q42-sw-1(config)#
msk-q42-sw-1(config)#vlan 201
msk-q42-sw-1(config-vlan)#name q42-main
msk-q42-sw-1(config-vlan)#exit
msk-q42-sw-1(config)#
msk-q42-sw-1(config)#interface vlan201
msk-q42-sw-1(config-if)#no shutdown
msk-q42-sw-1(config-if)#exit
msk-q42-sw-1(config)#exit
msk-q42-sw-1#
msk-q42-sw-1#wr m
Building configuration...
[OK]
msk-q42-sw-1#
msk-q42-sw-1#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%SYS-5-CONFIG_I: Configured from console by console
msk-q42-sw-1#
```

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

Рис. 1. 8. Настройка интерфейсов коммутатора msk-q42-sw-1.

Настройка площадки 42-го квартала

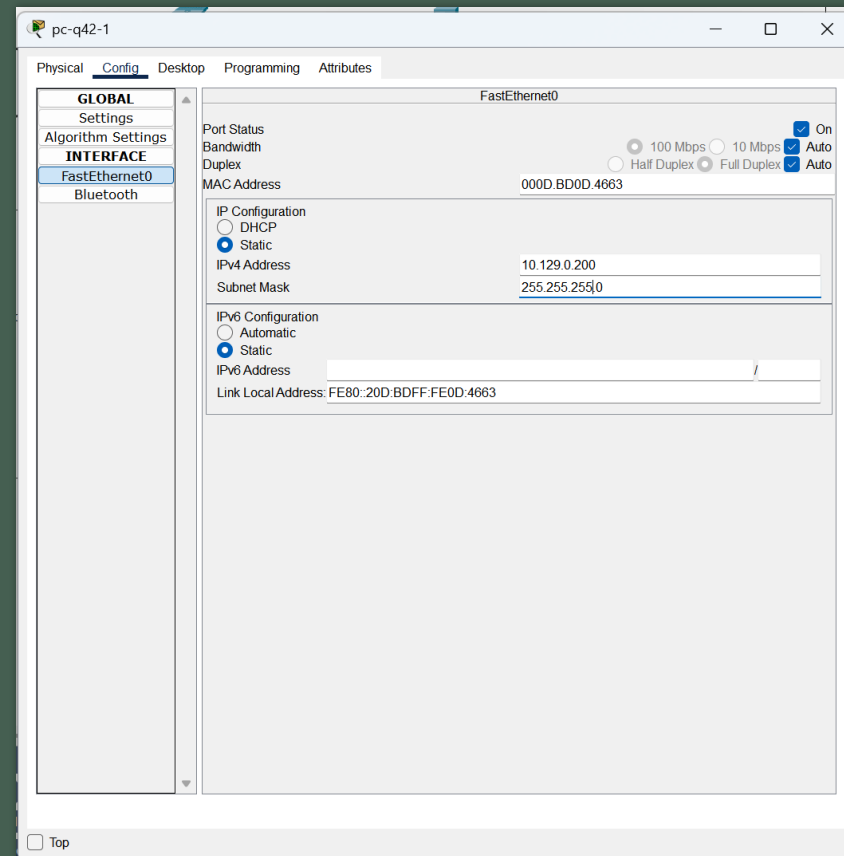
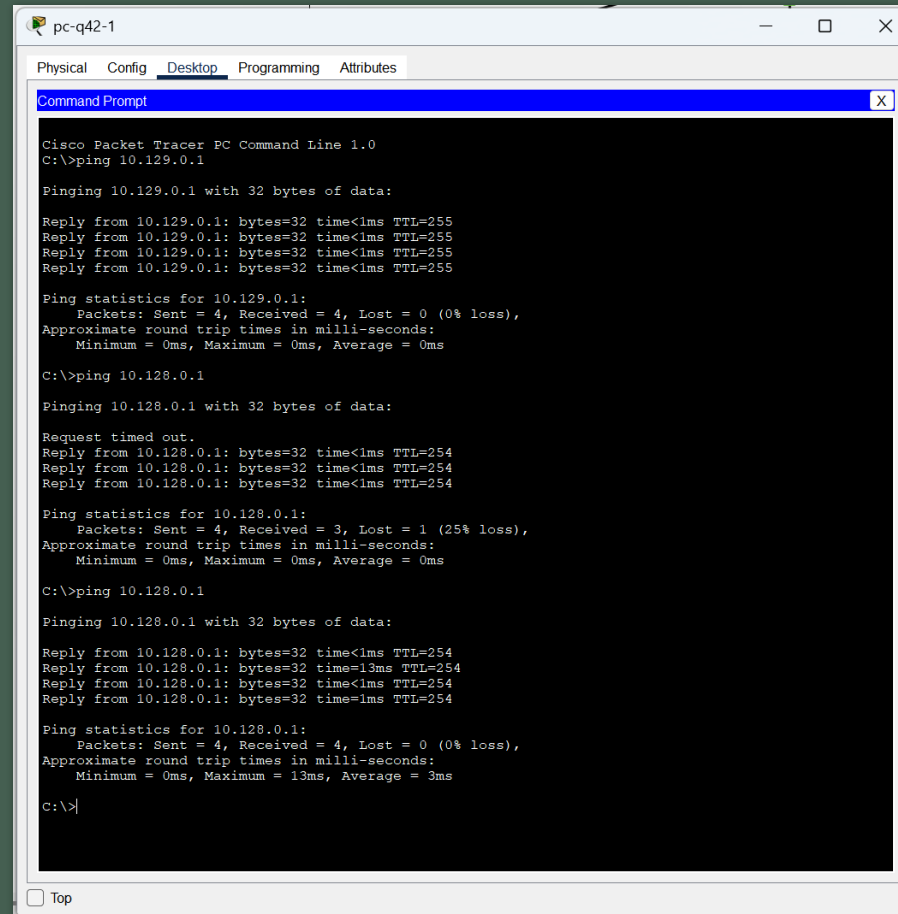


Рис. 1.9. Присвоение адресов оконечному устройству pc-q42-1.

Настройка площадки 42-го квартала



```
pc-q42-1
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.129.0.1

Pinging 10.129.0.1 with 32 bytes of data:

Reply from 10.129.0.1: bytes=32 time<1ms TTL=255
Reply from 10.129.0.1: bytes=32 time<1ms TTL=255
Reply from 10.129.0.1: bytes=32 time<1ms TTL=255
Reply from 10.129.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.129.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.128.0.1

Pinging 10.128.0.1 with 32 bytes of data:

Request timed out.
Reply from 10.128.0.1: bytes=32 time<1ms TTL=254
Reply from 10.128.0.1: bytes=32 time<1ms TTL=254
Reply from 10.128.0.1: bytes=32 time<1ms TTL=254

Ping statistics for 10.128.0.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.128.0.1

Pinging 10.128.0.1 with 32 bytes of data:

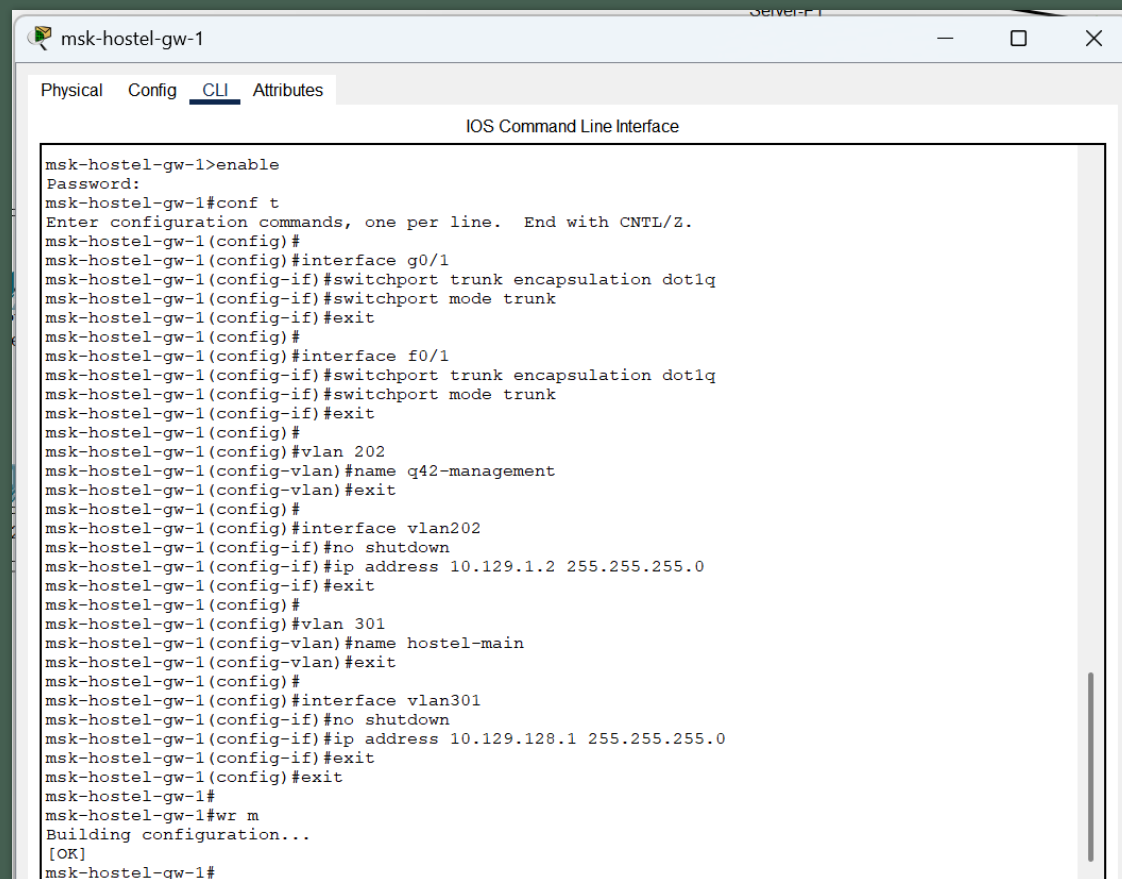
Reply from 10.128.0.1: bytes=32 time<1ms TTL=254
Reply from 10.128.0.1: bytes=32 time=13ms TTL=254
Reply from 10.128.0.1: bytes=32 time<1ms TTL=254
Reply from 10.128.0.1: bytes=32 time=1ms TTL=254

Ping statistics for 10.128.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 3ms

C:\>
```

Рис. 1.10. Выполнение проверки.

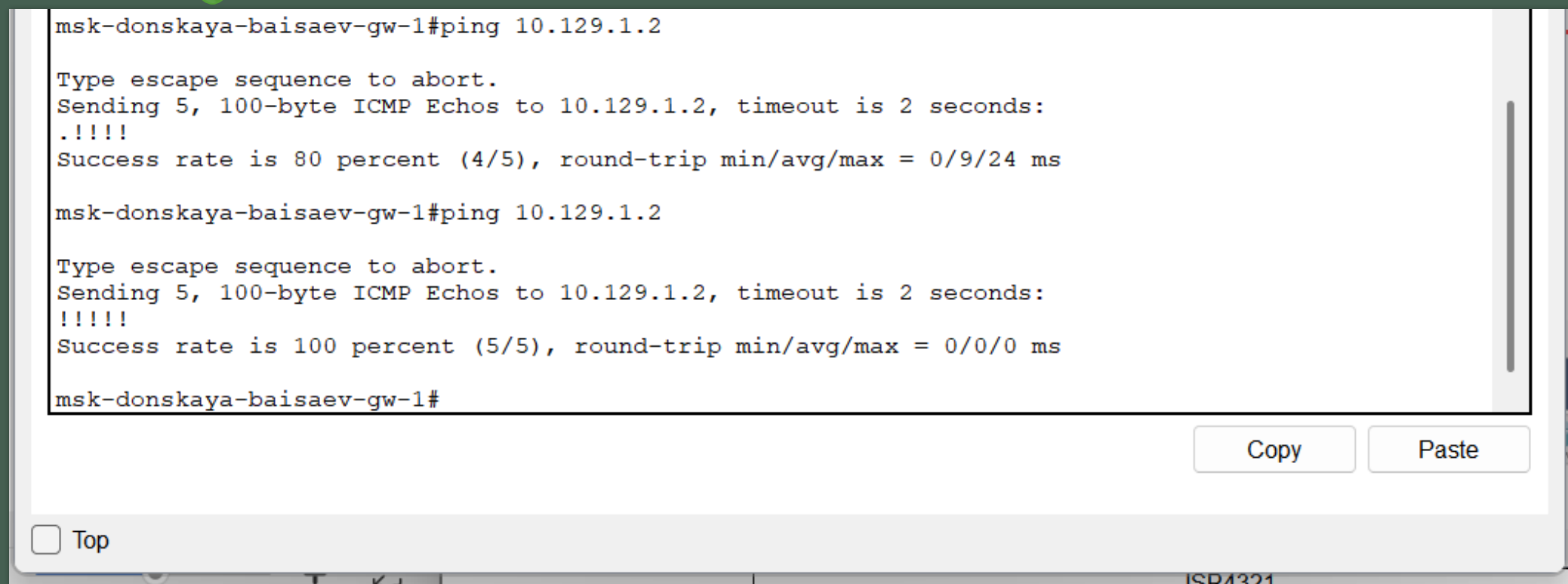
Настройка площадки 42-го квартала



```
msk-hostel-gw-1>enable
Password:
msk-hostel-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-hostel-gw-1(config)#
msk-hostel-gw-1(config)#interface g0/1
msk-hostel-gw-1(config-if)#switchport trunk encapsulation dot1q
msk-hostel-gw-1(config-if)#switchport mode trunk
msk-hostel-gw-1(config-if)#exit
msk-hostel-gw-1(config)#
msk-hostel-gw-1(config)#interface f0/1
msk-hostel-gw-1(config-if)#switchport trunk encapsulation dot1q
msk-hostel-gw-1(config-if)#switchport mode trunk
msk-hostel-gw-1(config-if)#exit
msk-hostel-gw-1(config)#
msk-hostel-gw-1(config)#vlan 202
msk-hostel-gw-1(config-vlan)#name q42-management
msk-hostel-gw-1(config-vlan)#exit
msk-hostel-gw-1(config)#
msk-hostel-gw-1(config)#interface vlan202
msk-hostel-gw-1(config-if)#no shutdown
msk-hostel-gw-1(config-if)#ip address 10.129.1.2 255.255.255.0
msk-hostel-gw-1(config-if)#exit
msk-hostel-gw-1(config)#
msk-hostel-gw-1(config)#vlan 301
msk-hostel-gw-1(config-vlan)#name hostel-main
msk-hostel-gw-1(config-vlan)#exit
msk-hostel-gw-1(config)#
msk-hostel-gw-1(config)#interface vlan301
msk-hostel-gw-1(config-if)#no shutdown
msk-hostel-gw-1(config-if)#ip address 10.129.128.1 255.255.255.0
msk-hostel-gw-1(config-if)#exit
msk-hostel-gw-1(config)#exit
msk-hostel-gw-1#
msk-hostel-gw-1#wr m
Building configuration...
[OK]
msk-hostel-gw-1#
```

Рис. 1.11. Настройка интерфейсов маршрутизирующего коммутатора msk-hostel-gw-1.

Настройка площадки 42-го квартала



```
msk-donskaya-baisaev-gw-1#ping 10.129.1.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.129.1.2, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/9/24 ms

msk-donskaya-baisaev-gw-1#ping 10.129.1.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.129.1.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

msk-donskaya-baisaev-gw-1#
```

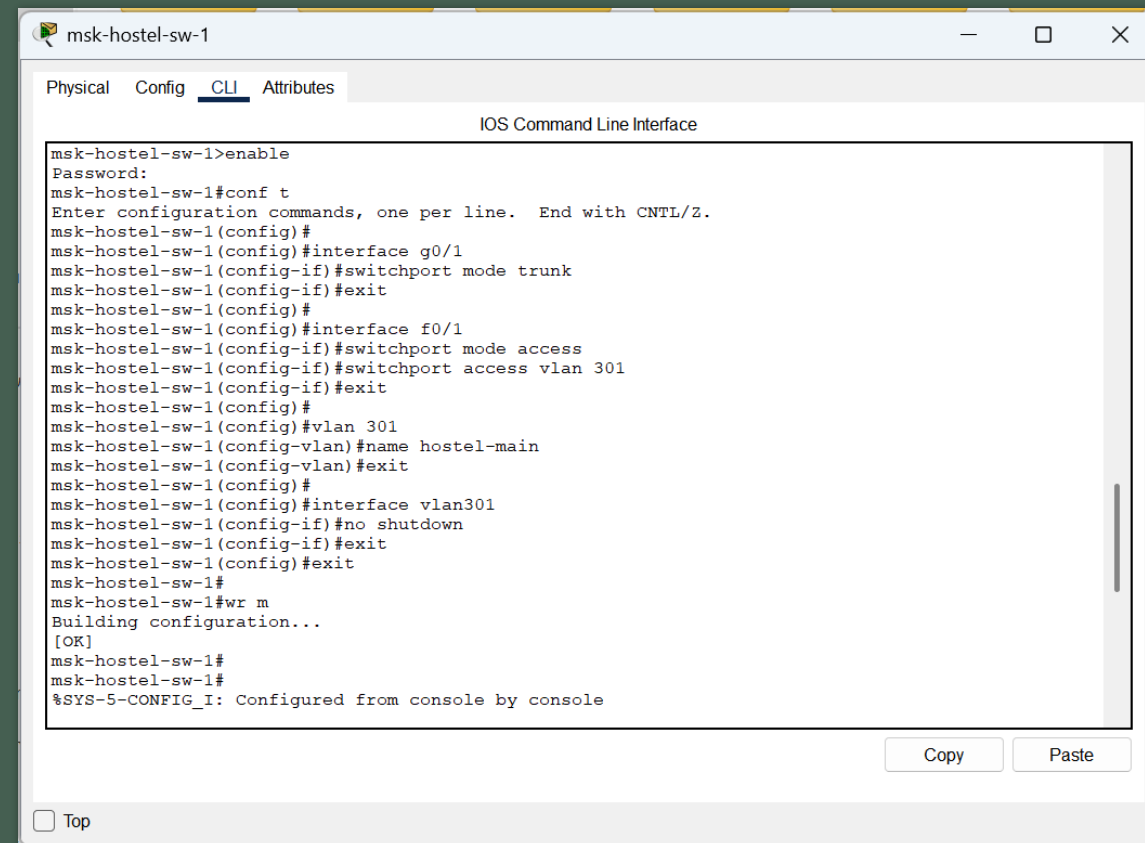
☐ Top

Copy Paste

ISR4321

Рис. 1.12. Выполнение проверки.

Настройка площадки 42-го квартала



The screenshot shows a terminal window titled "msk-hostel-sw-1" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The terminal text shows the following sequence of commands and responses:

```
msk-hostel-sw-1>enable
Password:
msk-hostel-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-hostel-sw-1(config)#
msk-hostel-sw-1(config)#interface g0/1
msk-hostel-sw-1(config-if)#switchport mode trunk
msk-hostel-sw-1(config-if)#exit
msk-hostel-sw-1(config)#
msk-hostel-sw-1(config)#interface f0/1
msk-hostel-sw-1(config-if)#switchport mode access
msk-hostel-sw-1(config-if)#switchport access vlan 301
msk-hostel-sw-1(config-if)#exit
msk-hostel-sw-1(config)#
msk-hostel-sw-1(config)#vlan 301
msk-hostel-sw-1(config-vlan)#name hostel-main
msk-hostel-sw-1(config-vlan)#exit
msk-hostel-sw-1(config)#
msk-hostel-sw-1(config)#interface vlan301
msk-hostel-sw-1(config-if)#no shutdown
msk-hostel-sw-1(config-if)#exit
msk-hostel-sw-1(config)#exit
msk-hostel-sw-1#
msk-hostel-sw-1#wr m
Building configuration...
[OK]
msk-hostel-sw-1#
msk-hostel-sw-1#
%SYS-5-CONFIG_I: Configured from console by console
```

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

Рис. 1.13. Настройка интерфейсов коммутатора msk-hostel-sw-1.

Настройка площадки 42-го квартала

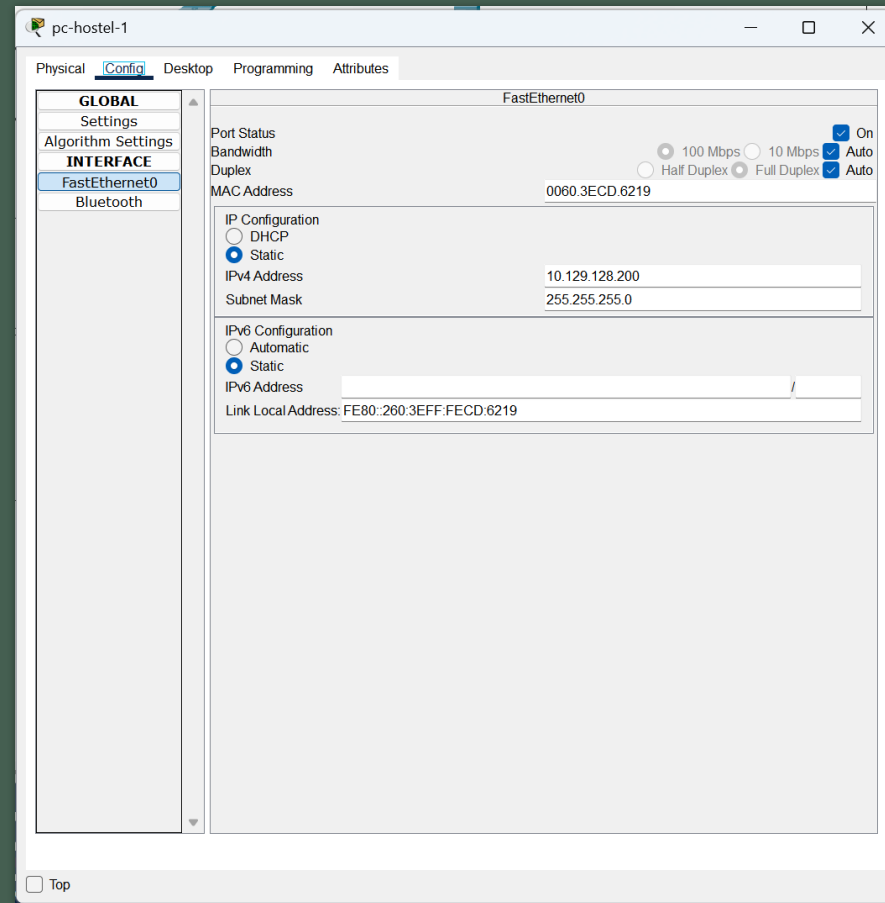
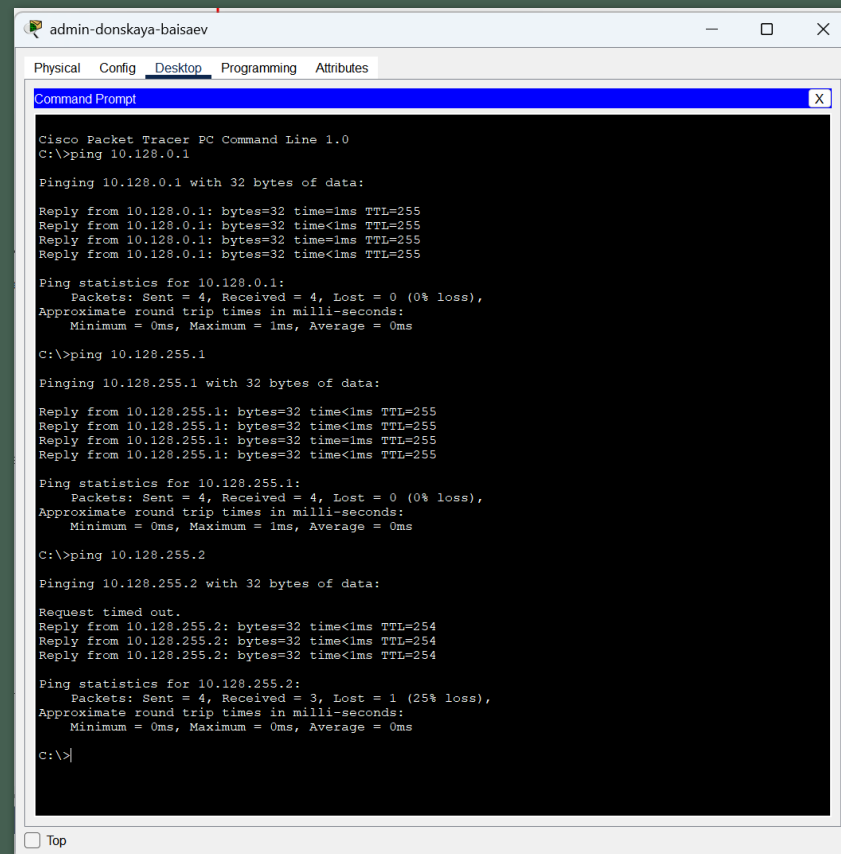


Рис. 1.14. Присвоение адресов оконечному устройству pc-hostel-1.

Настройка площадки 42-го квартала



```
admin-donskaya-baisaev
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.128.0.1

Pinging 10.128.0.1 with 32 bytes of data:

Reply from 10.128.0.1: bytes=32 time<1ms TTL=255
Reply from 10.128.0.1: bytes=32 time<1ms TTL=255
Reply from 10.128.0.1: bytes=32 time<1ms TTL=255
Reply from 10.128.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.128.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 10.128.255.1

Pinging 10.128.255.1 with 32 bytes of data:

Reply from 10.128.255.1: bytes=32 time<1ms TTL=255
Reply from 10.128.255.1: bytes=32 time<1ms TTL=255
Reply from 10.128.255.1: bytes=32 time<1ms TTL=255
Reply from 10.128.255.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.128.255.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 10.128.255.2

Pinging 10.128.255.2 with 32 bytes of data:

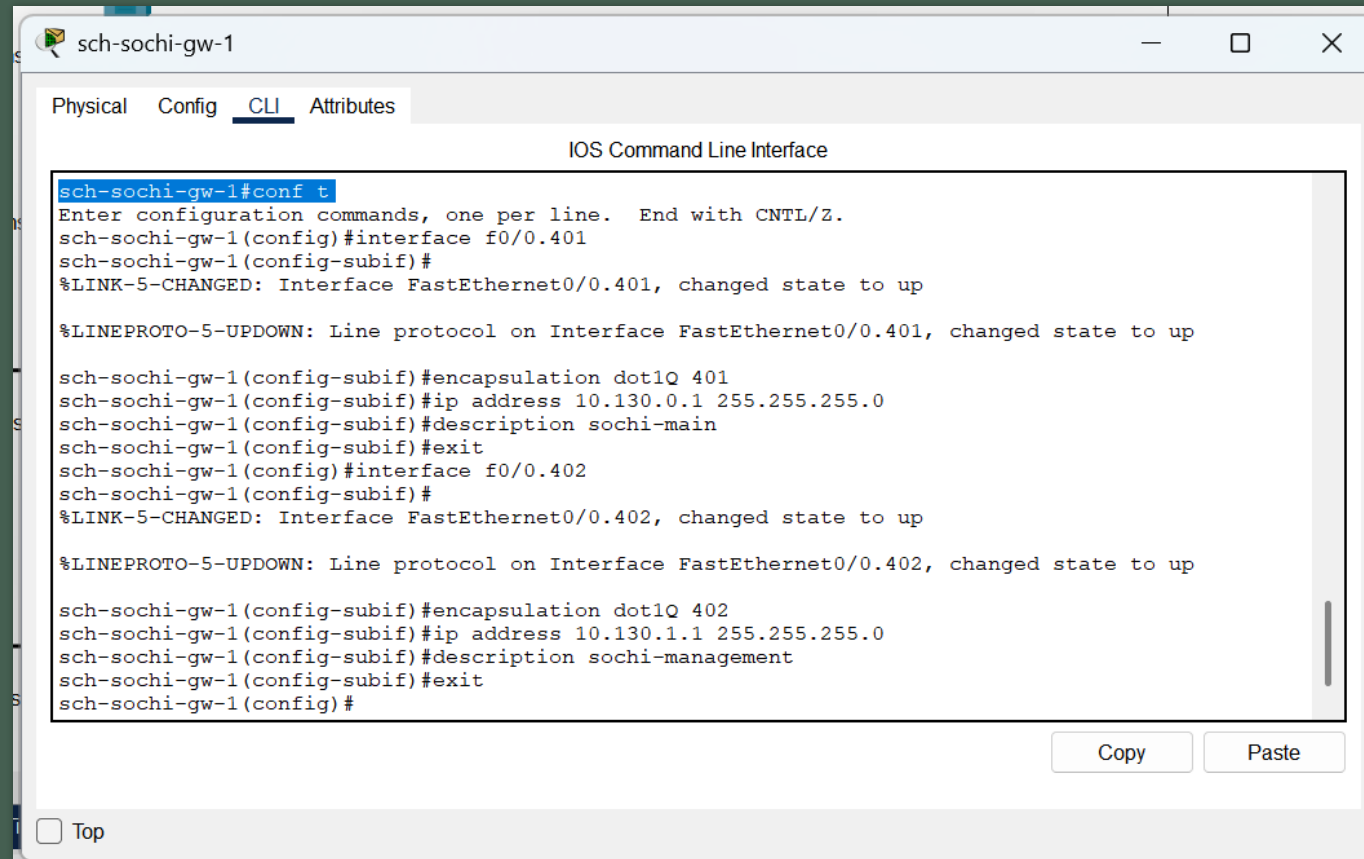
Request timed out.
Reply from 10.128.255.2: bytes=32 time<1ms TTL=254
Reply from 10.128.255.2: bytes=32 time<1ms TTL=254
Reply from 10.128.255.2: bytes=32 time<1ms TTL=254

Ping statistics for 10.128.255.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Рис. 1.15. Выполнение проверки.

Настройка площадки в Сочи



The screenshot shows a terminal window titled "sch-sochi-gw-1" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The terminal shows the following commands and their outputs:

```
sch-sochi-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
sch-sochi-gw-1(config)#interface f0/0.401
sch-sochi-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.401, changed state to up

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

sch-sochi-gw-1(config-subif)#encapsulation dot1Q 401
sch-sochi-gw-1(config-subif)#ip address 10.130.0.1 255.255.255.0
sch-sochi-gw-1(config-subif)#description sochi-main
sch-sochi-gw-1(config-subif)#exit
sch-sochi-gw-1(config)#interface f0/0.402
sch-sochi-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.402, changed state to up

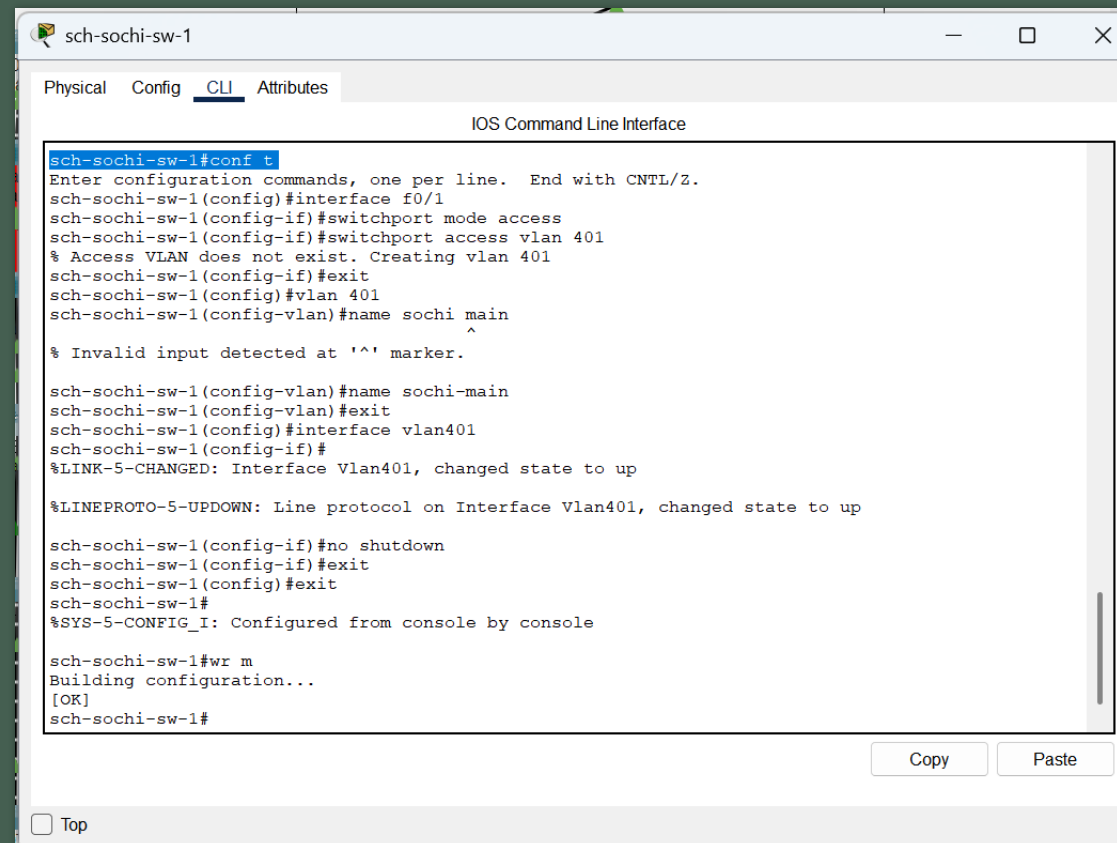
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.402, changed state to up

sch-sochi-gw-1(config-subif)#encapsulation dot1Q 402
sch-sochi-gw-1(config-subif)#ip address 10.130.1.1 255.255.255.0
sch-sochi-gw-1(config-subif)#description sochi-management
sch-sochi-gw-1(config-subif)#exit
sch-sochi-gw-1(config)#
```

At the bottom right of the terminal window, there are "Copy" and "Paste" buttons. At the bottom left, there is a "Top" button.

Рис. 1.16. Первоначальная настройка маршрутизатора sch-sochi-gw-1.

Настройка площадки в Сочи



The screenshot shows a web-based configuration interface for a switch named 'sch-sochi-sw-1'. The 'CLI' tab is active, displaying a series of configuration commands and their outputs. The commands configure interface f0/1 as an access port for VLAN 401, create the VLAN, name it 'sochi-main', and enable the interface. The output shows the configuration being applied successfully.

```
sch-sochi-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
sch-sochi-sw-1(config)#interface f0/1
sch-sochi-sw-1(config-if)#switchport mode access
sch-sochi-sw-1(config-if)#switchport access vlan 401
% Access VLAN does not exist. Creating vlan 401
sch-sochi-sw-1(config-if)#exit
sch-sochi-sw-1(config)#vlan 401
sch-sochi-sw-1(config-vlan)#name sochi main
sch-sochi-sw-1(config-vlan)#name sochi-main
sch-sochi-sw-1(config-vlan)#exit
sch-sochi-sw-1(config)#interface vlan401
sch-sochi-sw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan401, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan401, changed state to up

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

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

Рис. 1.17. Первоначальная настройка коммутатора sch-sochi-sw-1.

Настройка площадки в Сочи

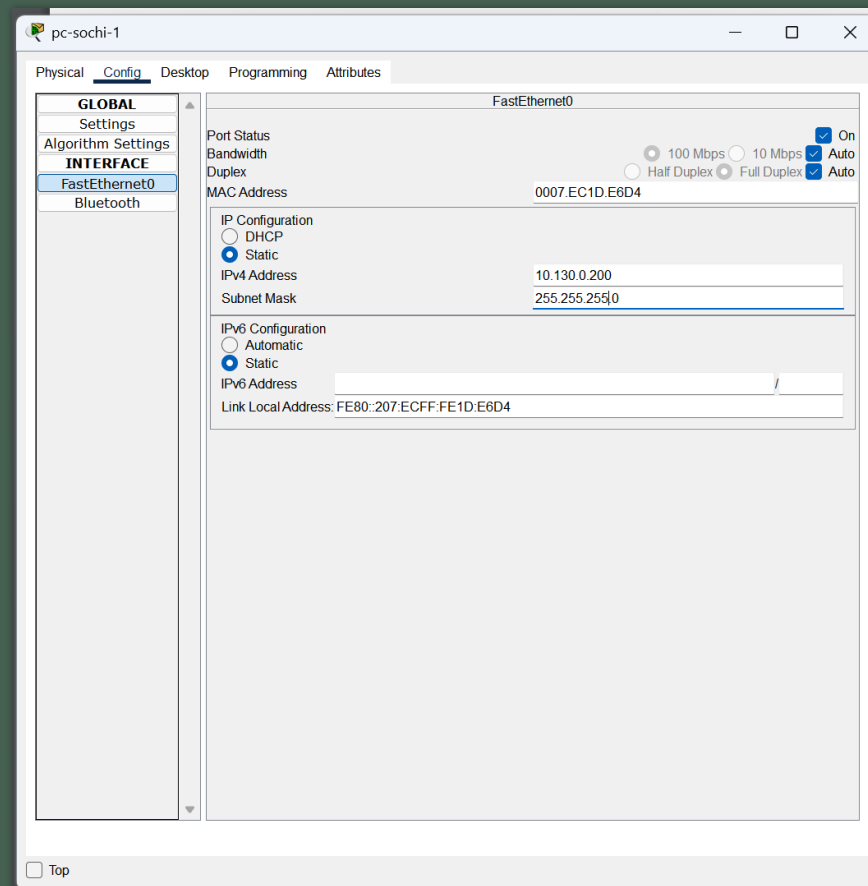
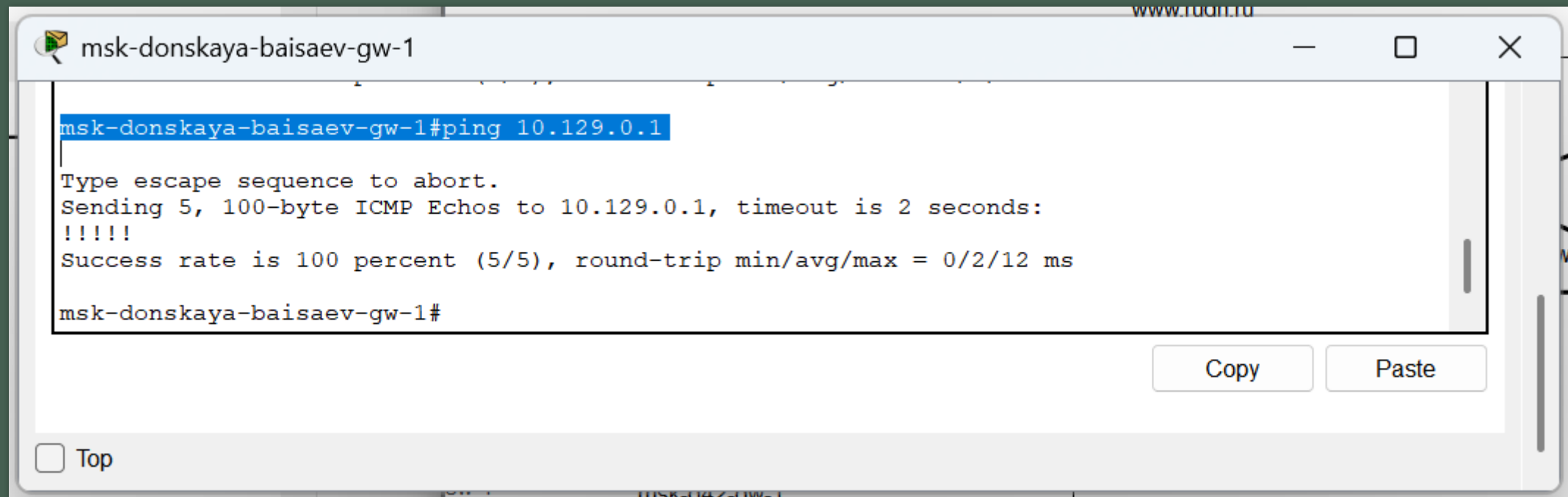


Рис. 1.18. Присвоение адресов оконечному устройству pc-sochi-1.

Настройка маршрутизации между площадками

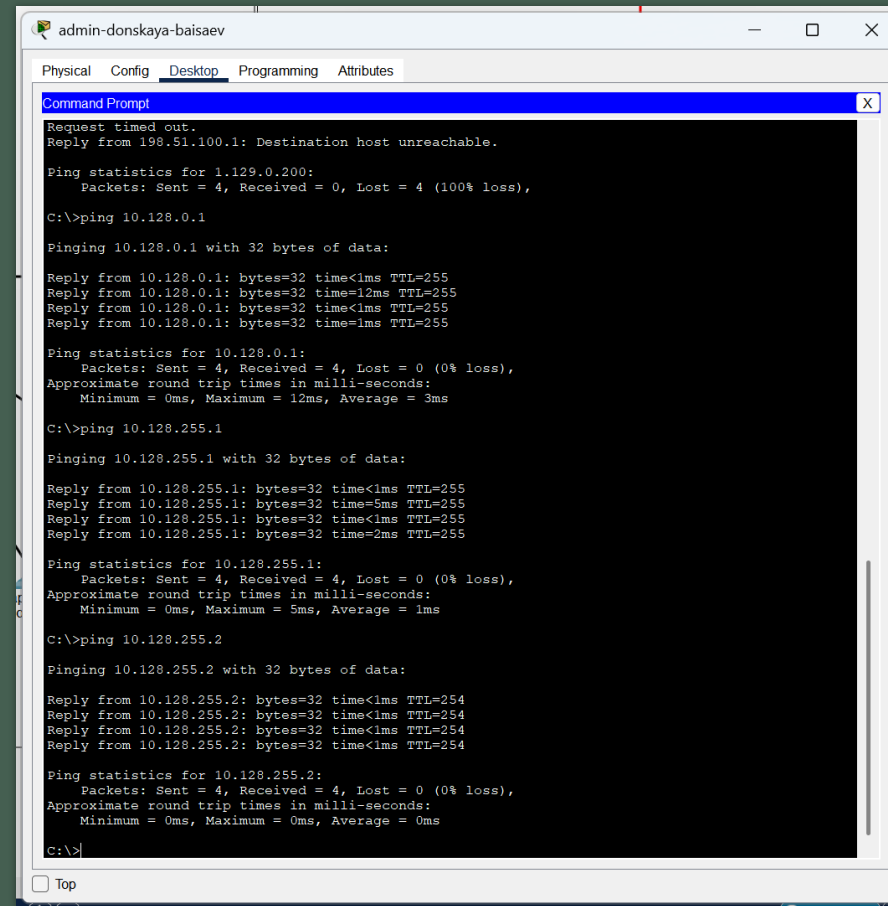


The image shows a terminal window titled "msk-donskaya-baisaev-gw-1" with standard window controls. The terminal text shows a user entering the command "ping 10.129.0.1", which is highlighted in blue. The output indicates a successful ping with a 100% success rate and a round-trip time of 0/2/12 ms. At the bottom left, there is a "Top" button with a checkbox, and at the bottom right, there are "Copy" and "Paste" buttons.

```
msk-donskaya-baisaev-gw-1#ping 10.129.0.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.129.0.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/2/12 ms
msk-donskaya-baisaev-gw-1#
```

Рис. 1.19. Настройка маршрутизатора msk-donskaya-baisaev-gw-1.

Настройка маршрутизации между площадками



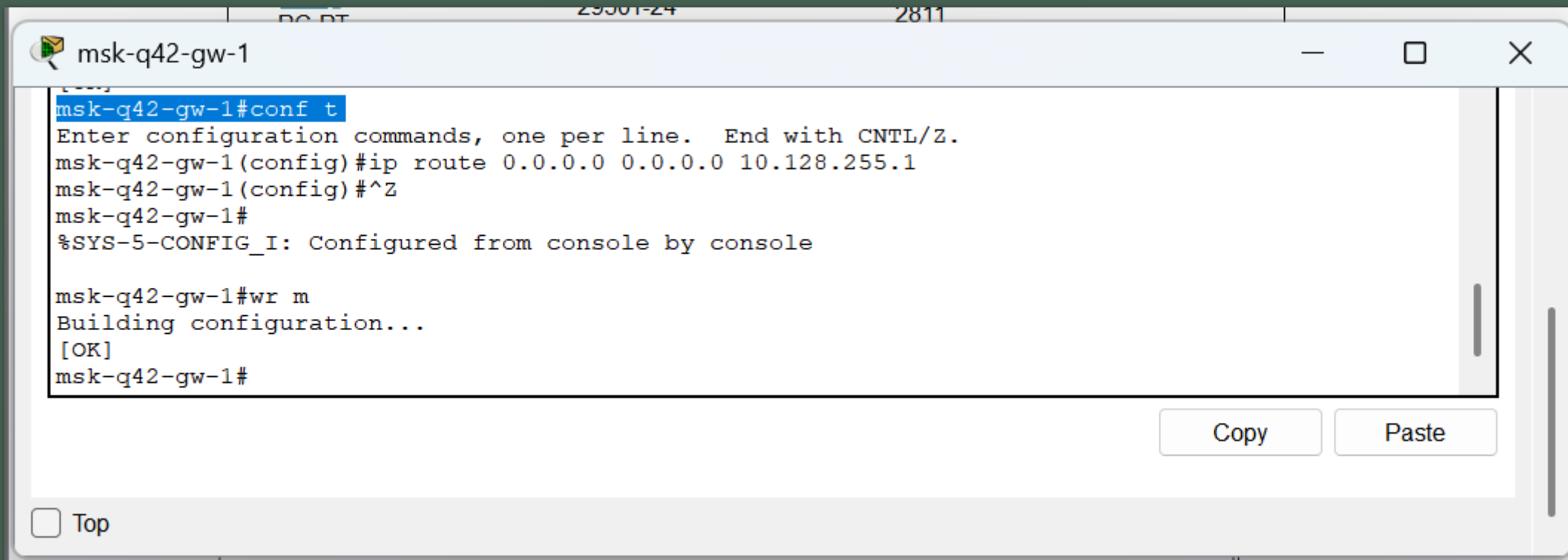
The screenshot shows a Windows Command Prompt window titled "admin-donskaya-baisaev". The window has tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes", with "Desktop" currently selected. The Command Prompt displays the following text:

```
Request timed out.  
Reply from 198.51.100.1: Destination host unreachable.  
  
Ping statistics for 1.129.0.200:  
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),  
  
C:\>ping 10.128.0.1  
  
Pinging 10.128.0.1 with 32 bytes of data:  
  
Reply from 10.128.0.1: bytes=32 time<1ms TTL=255  
Reply from 10.128.0.1: bytes=32 time=12ms TTL=255  
Reply from 10.128.0.1: bytes=32 time<1ms TTL=255  
Reply from 10.128.0.1: bytes=32 time=1ms TTL=255  
  
Ping statistics for 10.128.0.1:  
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
Minimum = 0ms, Maximum = 12ms, Average = 3ms  
  
C:\>ping 10.128.255.1  
  
Pinging 10.128.255.1 with 32 bytes of data:  
  
Reply from 10.128.255.1: bytes=32 time<1ms TTL=255  
Reply from 10.128.255.1: bytes=32 time=5ms TTL=255  
Reply from 10.128.255.1: bytes=32 time<1ms TTL=255  
Reply from 10.128.255.1: bytes=32 time=2ms TTL=255  
  
Ping statistics for 10.128.255.1:  
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
Minimum = 0ms, Maximum = 5ms, Average = 1ms  
  
C:\>ping 10.128.255.2  
  
Pinging 10.128.255.2 with 32 bytes of data:  
  
Reply from 10.128.255.2: bytes=32 time<1ms TTL=254  
Reply from 10.128.255.2: bytes=32 time<1ms TTL=254  
Reply from 10.128.255.2: bytes=32 time<1ms TTL=254  
Reply from 10.128.255.2: bytes=32 time<1ms TTL=254  
  
Ping statistics for 10.128.255.2:  
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
Minimum = 0ms, Maximum = 0ms, Average = 0ms  
  
C:\>
```

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

Рис. 1.20. Выполнение проверки.

Настройка маршрутизации между площадками



The screenshot shows a terminal window titled "msk-q42-gw-1". The terminal content is as follows:

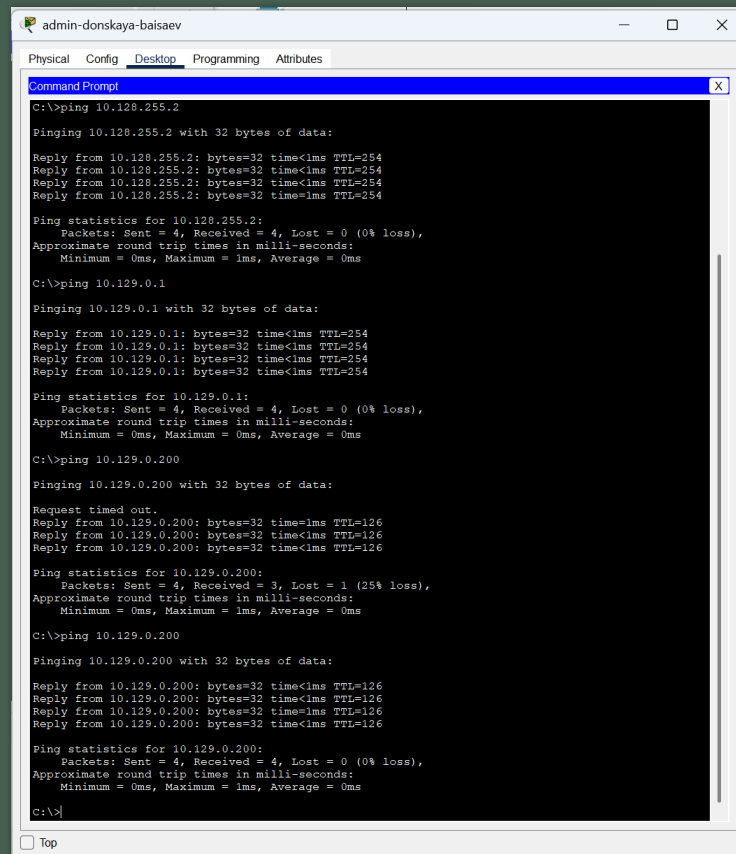
```
msk-q42-gw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
msk-q42-gw-1(config)#ip route 0.0.0.0 0.0.0.0 10.128.255.1
msk-q42-gw-1(config)#^Z
msk-q42-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-q42-gw-1#wr m
Building configuration...
[OK]
msk-q42-gw-1#
```

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

Рис. 1.21. Настройка маршрутизатора msk-q42-gw-1.

Настройка маршрутизации между площадками



```
admin-donskaya-baisaev
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ping 10.128.255.2

Pinging 10.128.255.2 with 32 bytes of data:

Reply from 10.128.255.2: bytes=32 time<1ms TTL=254
Reply from 10.128.255.2: bytes=32 time<1ms TTL=254
Reply from 10.128.255.2: bytes=32 time<1ms TTL=254
Reply from 10.128.255.2: bytes=32 time<1ms TTL=254

Ping statistics for 10.128.255.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 10.129.0.1

Pinging 10.129.0.1 with 32 bytes of data:

Reply from 10.129.0.1: bytes=32 time<1ms TTL=254
Reply from 10.129.0.1: bytes=32 time<1ms TTL=254
Reply from 10.129.0.1: bytes=32 time<1ms TTL=254
Reply from 10.129.0.1: bytes=32 time<1ms TTL=254

Ping statistics for 10.129.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.129.0.200

Pinging 10.129.0.200 with 32 bytes of data:

Request timed out.
Reply from 10.129.0.200: bytes=32 time=1ms TTL=126
Reply from 10.129.0.200: bytes=32 time<1ms TTL=126
Reply from 10.129.0.200: bytes=32 time<1ms TTL=126

Ping statistics for 10.129.0.200:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 10.129.0.200

Pinging 10.129.0.200 with 32 bytes of data:

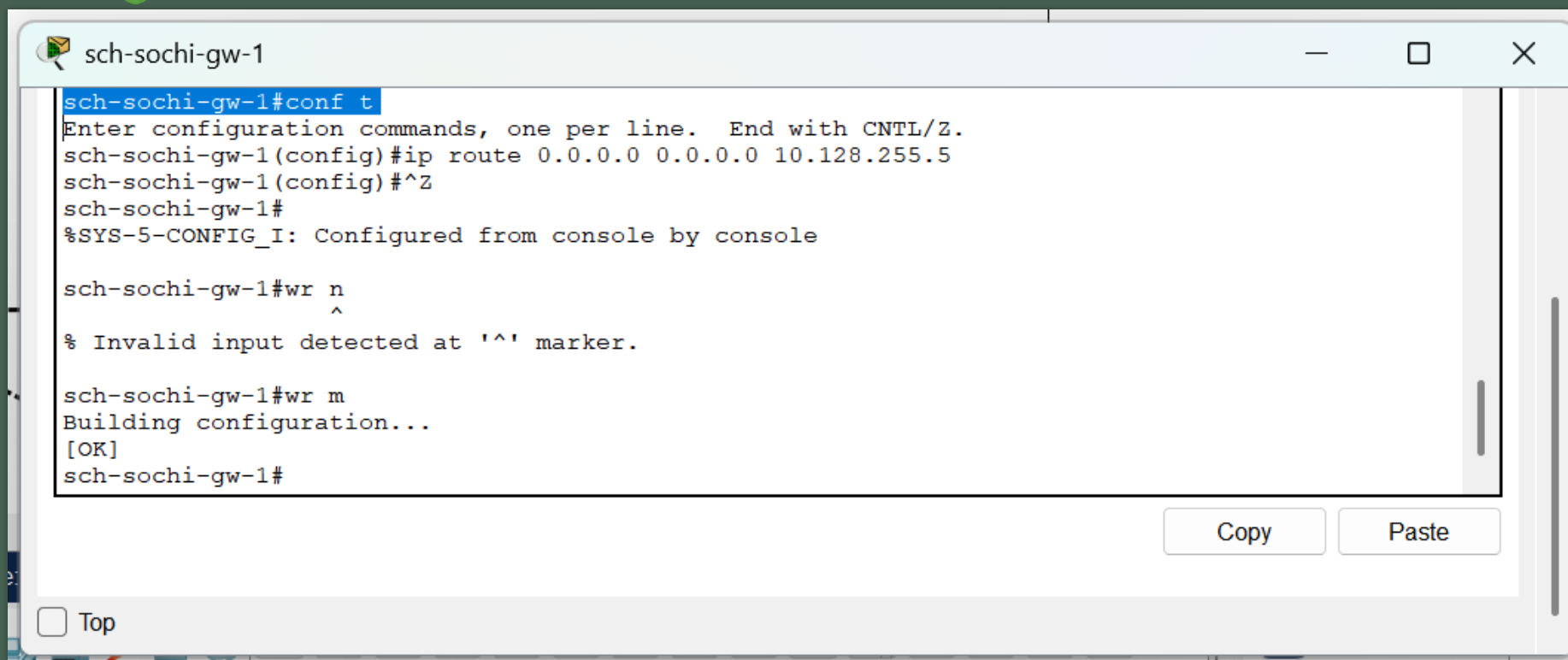
Reply from 10.129.0.200: bytes=32 time<1ms TTL=126
Reply from 10.129.0.200: bytes=32 time<1ms TTL=126
Reply from 10.129.0.200: bytes=32 time=1ms TTL=126
Reply from 10.129.0.200: bytes=32 time<1ms TTL=126

Ping statistics for 10.129.0.200:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

Рис. 1.22. Выполнение проверки.

Настройка маршрутизации между площадками



```
sch-sochi-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
sch-sochi-gw-1(config)#ip route 0.0.0.0 0.0.0.0 10.128.255.5
sch-sochi-gw-1(config)#^Z
sch-sochi-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

sch-sochi-gw-1#wr n
^
% Invalid input detected at '^' marker.

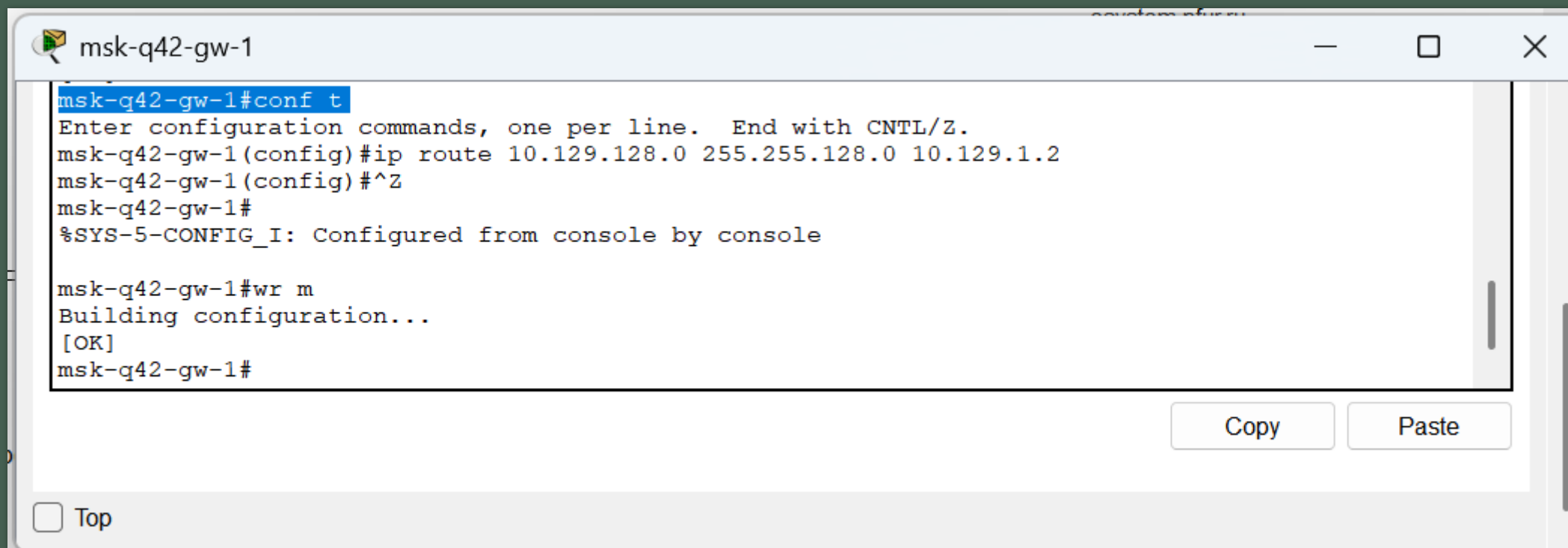
sch-sochi-gw-1#wr m
Building configuration...
[OK]
sch-sochi-gw-1#
```

Copy Paste

☐ Top

Рис. 1.23. Настройка маршрутизатора sch-soch-gw-1.

Настройка маршрутизации на 42 квартале



```
msk-q42-gw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
msk-q42-gw-1(config)#ip route 10.129.128.0 255.255.128.0 10.129.1.2
msk-q42-gw-1(config)#^Z
msk-q42-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

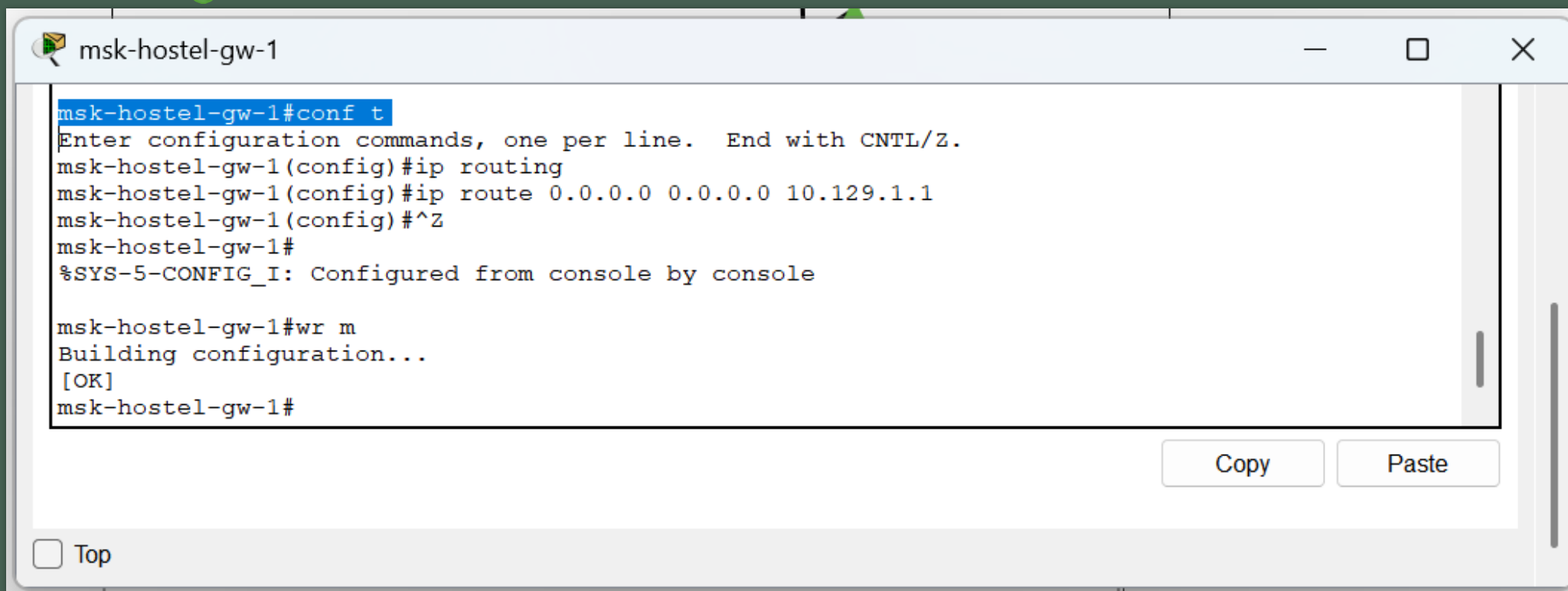
msk-q42-gw-1#wr m
Building configuration...
[OK]
msk-q42-gw-1#
```

Copy Paste

☐ Top

Рис. 1.24. Настройка маршрутизатора msk-q42-gw-1.

Настройка маршрутизации на 42 квартале

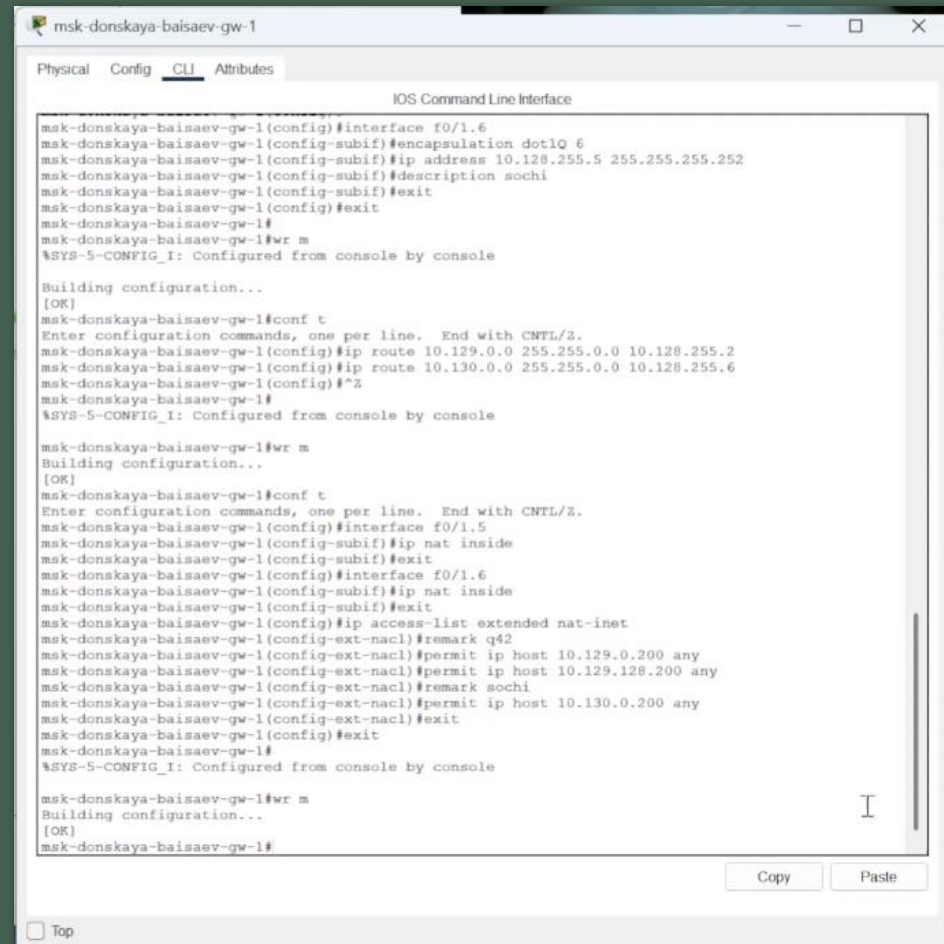


```
msk-hostel-gw-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
msk-hostel-gw-1(config)#ip routing
msk-hostel-gw-1(config)#ip route 0.0.0.0 0.0.0.0 10.129.1.1
msk-hostel-gw-1(config)#^Z
msk-hostel-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-hostel-gw-1#wr m
Building configuration...
[OK]
msk-hostel-gw-1#
```

Рис. 1.25. Настройка интерфейсов маршрутизирующего коммутатора msk-hostel-gw-1.

Настройка NAT



```
msk-donskaya-baisaev-gw-1
Physical Config CLI Attributes
IOS Command Line Interface
msk-donskaya-baisaev-gw-1(config)#interface f0/1.6
msk-donskaya-baisaev-gw-1(config-subif)#encapsulation dot1Q 6
msk-donskaya-baisaev-gw-1(config-subif)#ip address 10.128.255.5 255.255.255.252
msk-donskaya-baisaev-gw-1(config-subif)#description sochi
msk-donskaya-baisaev-gw-1(config-subif)#exit
msk-donskaya-baisaev-gw-1(config)#exit
msk-donskaya-baisaev-gw-1#
msk-donskaya-baisaev-gw-1#wr m
%SYS-5-CONFIG_I: Configured from console by console

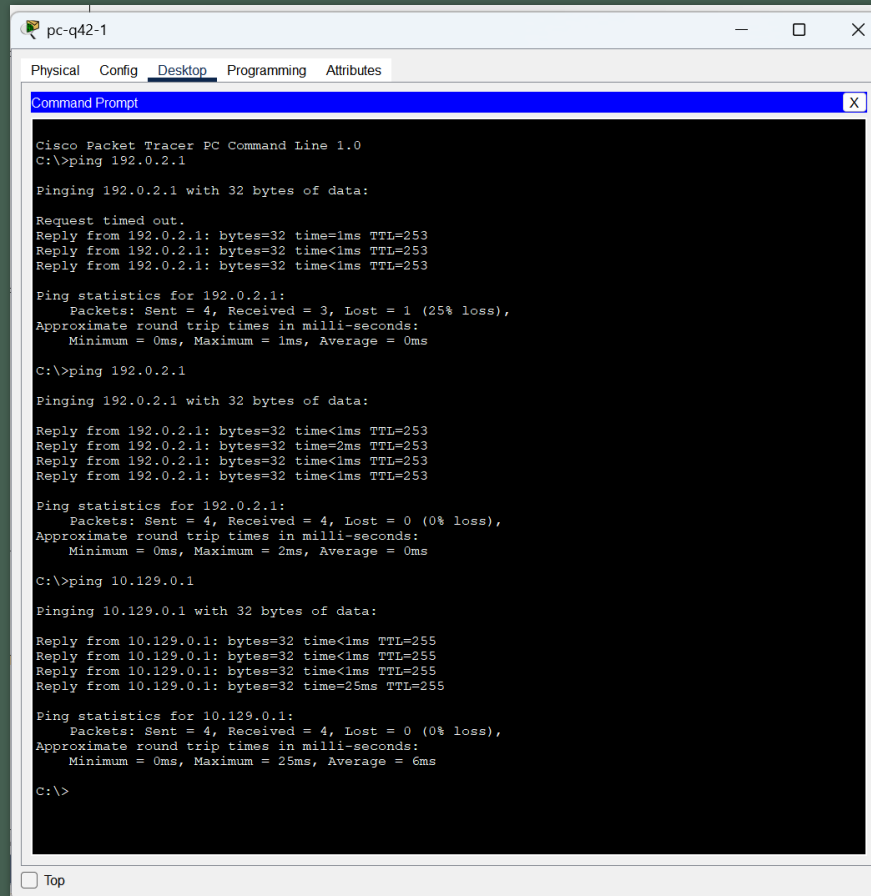
Building configuration...
[OK]
msk-donskaya-baisaev-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-baisaev-gw-1(config)#ip route 10.129.0.0 255.255.0.0 10.128.255.2
msk-donskaya-baisaev-gw-1(config)#ip route 10.130.0.0 255.255.0.0 10.128.255.6
msk-donskaya-baisaev-gw-1(config)#^Z
msk-donskaya-baisaev-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-baisaev-gw-1#wr m
Building configuration...
[OK]
msk-donskaya-baisaev-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-baisaev-gw-1(config)#interface f0/1.5
msk-donskaya-baisaev-gw-1(config-subif)#ip nat inside
msk-donskaya-baisaev-gw-1(config-subif)#exit
msk-donskaya-baisaev-gw-1(config)#interface f0/1.6
msk-donskaya-baisaev-gw-1(config-subif)#ip nat inside
msk-donskaya-baisaev-gw-1(config-subif)#exit
msk-donskaya-baisaev-gw-1(config)#ip access-list extended nat-inet
msk-donskaya-baisaev-gw-1(config-ext-nacl)#remark q42
msk-donskaya-baisaev-gw-1(config-ext-nacl)#permit ip host 10.129.0.200 any
msk-donskaya-baisaev-gw-1(config-ext-nacl)#permit ip host 10.129.128.200 any
msk-donskaya-baisaev-gw-1(config-ext-nacl)#remark sochi
msk-donskaya-baisaev-gw-1(config-ext-nacl)#permit ip host 10.130.0.200 any
msk-donskaya-baisaev-gw-1(config-ext-nacl)#exit
msk-donskaya-baisaev-gw-1(config)#exit
msk-donskaya-baisaev-gw-1#
%SYS-5-CONFIG_I: Configured from console by console

msk-donskaya-baisaev-gw-1#wr m
Building configuration...
[OK]
msk-donskaya-baisaev-gw-1#
```

Рис. 1.26. Настройка NAT на маршрутизаторе msk-donskaya-baisaev-gw-1.

Настройка NAT



The screenshot shows a Cisco Packet Tracer PC Command Line window for a device named 'pc-q42-1'. The window has tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes', with 'Desktop' selected. The Command Prompt shows the following output:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.0.2.1

Pinging 192.0.2.1 with 32 bytes of data:

Request timed out.
Reply from 192.0.2.1: bytes=32 time=1ms TTL=253
Reply from 192.0.2.1: bytes=32 time<1ms TTL=253
Reply from 192.0.2.1: bytes=32 time<1ms TTL=253

Ping statistics for 192.0.2.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.0.2.1

Pinging 192.0.2.1 with 32 bytes of data:

Reply from 192.0.2.1: bytes=32 time<1ms TTL=253
Reply from 192.0.2.1: bytes=32 time=2ms TTL=253
Reply from 192.0.2.1: bytes=32 time<1ms TTL=253
Reply from 192.0.2.1: bytes=32 time<1ms TTL=253

Ping statistics for 192.0.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>ping 10.129.0.1

Pinging 10.129.0.1 with 32 bytes of data:

Reply from 10.129.0.1: bytes=32 time<1ms TTL=255
Reply from 10.129.0.1: bytes=32 time<1ms TTL=255
Reply from 10.129.0.1: bytes=32 time<1ms TTL=255
Reply from 10.129.0.1: bytes=32 time=25ms TTL=255

Ping statistics for 10.129.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 25ms, Average = 6ms

C:\>
```

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

Рис. 1.27. Контрольная проверка.

ВЫВОД

- В ходе выполнения лабораторной работы мы настроили взаимодействие через сеть провайдера посредством статической маршрутизации локальной сети организации с сетью основного здания, расположенного в 42-м квартале в Москве, и сетью филиала, расположенного в г. Сочи.

Спасибо за внимание!