

РОССИЙСКИЙ УНИВЕРСИТЕТ ДРУЖБЫ НАРОДОВ
Факультет физико-математических и естественных наук
Кафедра прикладной информатики и теории вероятностей

ОТЧЕТ
ПО ЛАБОРАТОРНОЙ РАБОТЕ № 14

дисциплина: Администрирование локальных сетей

Студент: Шутенко Виктория Михайловна

Группа: НФИ-бд-03-19

МОСКВА

2022 г.

Цель работы:

Настроить 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.

Задание

1. Настроить связь между территориями (см. раздел 14.3.1).
2. Настроить оборудование, расположенное в квартале 42 в Москве (см. раздел 14.3.2).
3. Настроить оборудование, расположенное в филиале в г. Сочи (см. раздел 14.3.3).
4. Настроить статическую маршрутизацию между территориями (см. раздел 14.3.4).
5. Настроить статическую маршрутизацию на территории квартала 42 в г. Москве (см. раздел 14.3.5).
6. Настроить NAT на маршрутизаторе msk-donskaya-gw-1 (см. раздел 14.3.6).
7. При выполнении работы необходимо учитывать соглашение об именовании (см. раздел 2.5).

Последовательность выполнения работы

14.3.1. Настройка линка между площадками

14.3.1.1. Настройка интерфейсов коммутатора provider-sw-1

```
provider-sw-1>enable
```

```
provider-sw-1#configure terminal
```

```
provider-sw-1(config)#interface f0/3
```

```
provider-sw-1(config-if)#switchport mode trunk
```

```
provider-sw-1(config-if)#exit
```

```
provider-sw-1(config)#interface f0/4
```

```
provider-sw-1(config-if)#switchport mode trunk
```

```
provider-sw-1(config-if)#exit
```

```
provider-sw-1(config)#vlan 5
```

```
provider-sw-1(config-vlan)#name q42
```

```
provider-sw-1(config-vlan)#exit
```

```
provider-sw-1(config)#interface vlan5
```

```
provider-sw-1(config-if)#no shutdown
provider-sw-1(config-if)#exit
provider-sw-1(config)#vlan 6
provider-sw-1(config-vlan)#name sochi
provider-sw-1(config-vlan)#exit
provider-sw-1(config)#interface vlan6
provider-sw-1(config-if)#no shutdown
provider-sw-1(config-if)#exit
```

The screenshot shows a terminal window titled "provider-vmshutenko-sw-1". The window has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" being the active tab. Below the tabs is the text "IOS Command Line Interface". The main area displays the following configuration commands:

```
User Access Verification

Password:

provider-vmshutenko-sw-1>en
Password:
provider-vmshutenko-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
provider-vmshutenko-sw-1(config)#int f0/3
provider-vmshutenko-sw-1(config-if)#switchport mode trunk

provider-vmshutenko-sw-1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed
state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed
state to up
exit
provider-vmshutenko-sw-1(config)#int f0/4
provider-vmshutenko-sw-1(config-if)#switchport mode trunk

provider-vmshutenko-sw-1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed
state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed
state to up
exit
provider-vmshutenko-sw-1(config)#

Command+F6 to exit CLI focus
```

At the bottom right of the terminal window, there are "Copy" and "Paste" buttons.

Рисунок 1. Настройка интерфейсов f0/3, f0/4.

The screenshot shows a terminal window with the title bar 'provider-vmshutenko-sw-1'. Below the title bar is a navigation menu with tabs: 'Physical', 'Config', 'CLI' (which is selected), and 'Attributes'. The main area of the terminal displays the following IOS Command Line Interface (CLI) session:

```
provider-vmshutenko-sw-1(config)#%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to up
exit
provider-vmshutenko-sw-1(config)#vlan 5
provider-vmshutenko-sw-1(config-vlan)#name q42
provider-vmshutenko-sw-1(config-vlan)#exit
provider-vmshutenko-sw-1(config)#int vlan5
provider-vmshutenko-sw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan5, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan5, changed state to up

provider-vmshutenko-sw-1(config-if)#no shutdown
provider-vmshutenko-sw-1(config-if)#exit
provider-vmshutenko-sw-1(config)#vlan 6
provider-vmshutenko-sw-1(config-vlan)#name sochi
provider-vmshutenko-sw-1(config-vlan)#exit
provider-vmshutenko-sw-1(config)#int vlan6
provider-vmshutenko-sw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan6, changed state to up

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

provider-vmshutenko-sw-1(config-if)#no shutdown
provider-vmshutenko-sw-1(config-if)#exit
provider-vmshutenko-sw-1(config)#

Command+F6 to exit CLI focus
```

Рисунок 2. Настройка интерфейсов vlan5, vlan6.

14.3.1.2. Настройка интерфейсов маршрутизатора

msk-donskaya-gw-1

msk-donskaya-gw-1>enable

msk-donskaya-gw-1#configure terminal

msk-donskaya-gw-1(config)#interface f0/1.5

msk-donskaya-gw-1(config-subif)#encapsulation dot1Q 5

msk-donskaya-gw-1(config-subif)#ip address 10.128.255.1 255.255.255.252

msk-donskaya-gw-1(config-subif)#description q42

msk-donskaya-gw-1(config-subif)#exit

msk-donskaya-gw-1(config)#interface f0/1.6

msk-donskaya-gw-1(config-subif)#encapsulation dot1Q 6

msk-donskaya-gw-1(config-subif)#ip address 10.128.255.5 255.255.255.252

msk-donskaya-gw-1(config-subif)#description sochi

```
msk-donskaya-gw-1(config-subif)#exit  
msk-donskaya-gw-1(config)#exit
```

The screenshot shows a terminal window with the title bar 'msk-donskaya-vmshutenko-gw-1'. Below the title bar, there are tabs: Physical, Config, **CLI**, and Attributes. The main area is labeled 'IOS Command Line Interface'. The terminal output is as follows:

```
msk-donskaya-vmshutenko-gw-1>en  
Password:  
msk-donskaya-vmshutenko-gw-1#conf t  
Enter configuration commands, one per line. End with CNTL/Z.  
msk-donskaya-vmshutenko-gw-1(config)#int f0/1.5  
msk-donskaya-vmshutenko-gw-1(config-subif)#  
%LINK-5-CHANGED: Interface FastEthernet0/1.5, changed state to up  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1.5, changed  
state to up  
  
msk-donskaya-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 5  
msk-donskaya-vmshutenko-gw-1(config-subif)#ip address 10.128.255.1  
255.255.255.252  
msk-donskaya-vmshutenko-gw-1(config-subif)#description q42  
msk-donskaya-vmshutenko-gw-1(config-subif)#exit  
msk-donskaya-vmshutenko-gw-1(config)#int f0/1.6  
msk-donskaya-vmshutenko-gw-1(config-subif)#  
%LINK-5-CHANGED: Interface FastEthernet0/1.6, changed state to up  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1.6, changed  
state to up  
  
msk-donskaya-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 6  
msk-donskaya-vmshutenko-gw-1(config-subif)#ip address 10.128.255.5  
255.255.255.252  
msk-donskaya-vmshutenko-gw-1(config-subif)#description sochi  
msk-donskaya-vmshutenko-gw-1(config-subif)#exit  
msk-donskaya-vmshutenko-gw-1(config)#exit  
msk-donskaya-vmshutenko-gw-1#  
%SYS-5-CONFIG_I: Configured from console by console
```

At the bottom of the terminal window, there are buttons for 'Command+F6 to exit CLI focus', 'Copy', and 'Paste'.

Рисунок 3. Настройка интерфейсов f0/1.5, f0/1.6.

14.3.1.3. Настройка интерфейсов маршрутизатора msk-q42-gw-1

```
msk-q42-gw-1>enable  
msk-q42-gw-1#configure terminal  
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)#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 donskaya
msk-q42-gw-1(config-subif)#exit
msk-q42-gw-1(config)#exit
```

The screenshot shows a terminal window titled "msk-q42-vmshutenko-gw-1". The tab bar at the top includes "Physical", "Config", "CLI" (which is selected), and "Attributes". Below the tabs is the text "IOS Command Line Interface". A message box says "Enter configuration commands, one per line. End with Ctrl/Z." The terminal displays the following configuration commands:

```
msk-q42-vmshutenko-gw-1(config)#int f0/1
msk-q42-vmshutenko-gw-1(config-if)#no shutdown

msk-q42-vmshutenko-gw-1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

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

msk-q42-vmshutenko-gw-1(config-if)#exit
msk-q42-vmshutenko-gw-1(config)#int f0/1.5
msk-q42-vmshutenko-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/1.5, changed state to up

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

msk-q42-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 5
msk-q42-vmshutenko-gw-1(config-subif)#ip address 10.128.255.2
255.255.255.252
msk-q42-vmshutenko-gw-1(config-subif)#description donskaya
msk-q42-vmshutenko-gw-1(config-subif)#exit
msk-q42-vmshutenko-gw-1(config)#exit
msk-q42-vmshutenko-gw-1#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
msk-q42-vmshutenko-gw-1#
```

At the bottom left is the text "Command+F6 to exit CLI focus". On the right are "Copy" and "Paste" buttons. A "Top" button is located at the bottom left of the main window area.

Рисунок 4. Настройка интерфейсов f0/1, f0/1.5.

14.3.1.4. Настройка интерфейсов коммутатора sch-sochi-sw-1

```
sch-sochi-sw-1>enable
```

```
sch-sochi-sw-1#configure terminal
```

```
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)#interface f0/24
sch-sochi-sw-1(config-if)#switchport mode trunk
sch-sochi-sw-1(config-if)#exit
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)#interface vlan6
sch-sochi-sw-1(config-if)#no shutdown
sch-sochi-sw-1(config-if)#exit

```

sch-sochi-vmshutenko-sw-1

Physical Config **CLI** Attributes

IOS Command Line Interface

```

password.

sch-sochi-vmshutenko-sw-1>en
Password:
sch-sochi-vmshutenko-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
sch-sochi-vmshutenko-sw-1(config)#int f0/23
sch-sochi-vmshutenko-sw-1(config-if)#switchport mode trunk
sch-sochi-vmshutenko-sw-1(config-if)#exit
sch-sochi-vmshutenko-sw-1(config)#int f0/24
sch-sochi-vmshutenko-sw-1(config-if)#switchport mode trunk
sch-sochi-vmshutenko-sw-1(config-if)#exit
sch-sochi-vmshutenko-sw-1(config)#vlan 6
sch-sochi-vmshutenko-sw-1(config-vlan)#name sochi
sch-sochi-vmshutenko-sw-1(config-vlan)#exit
sch-sochi-vmshutenko-sw-1(config)#int vlan6
sch-sochi-vmshutenko-sw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan6, changed state to up

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

sch-sochi-vmshutenko-sw-1(config-if)#no shutdown
sch-sochi-vmshutenko-sw-1(config-if)#exit
sch-sochi-vmshutenko-sw-1(config)#^Z
sch-sochi-vmshutenko-sw-1#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
sch-sochi-vmshutenko-sw-1#

```

Command+F6 to exit CLI focus

Copy Paste

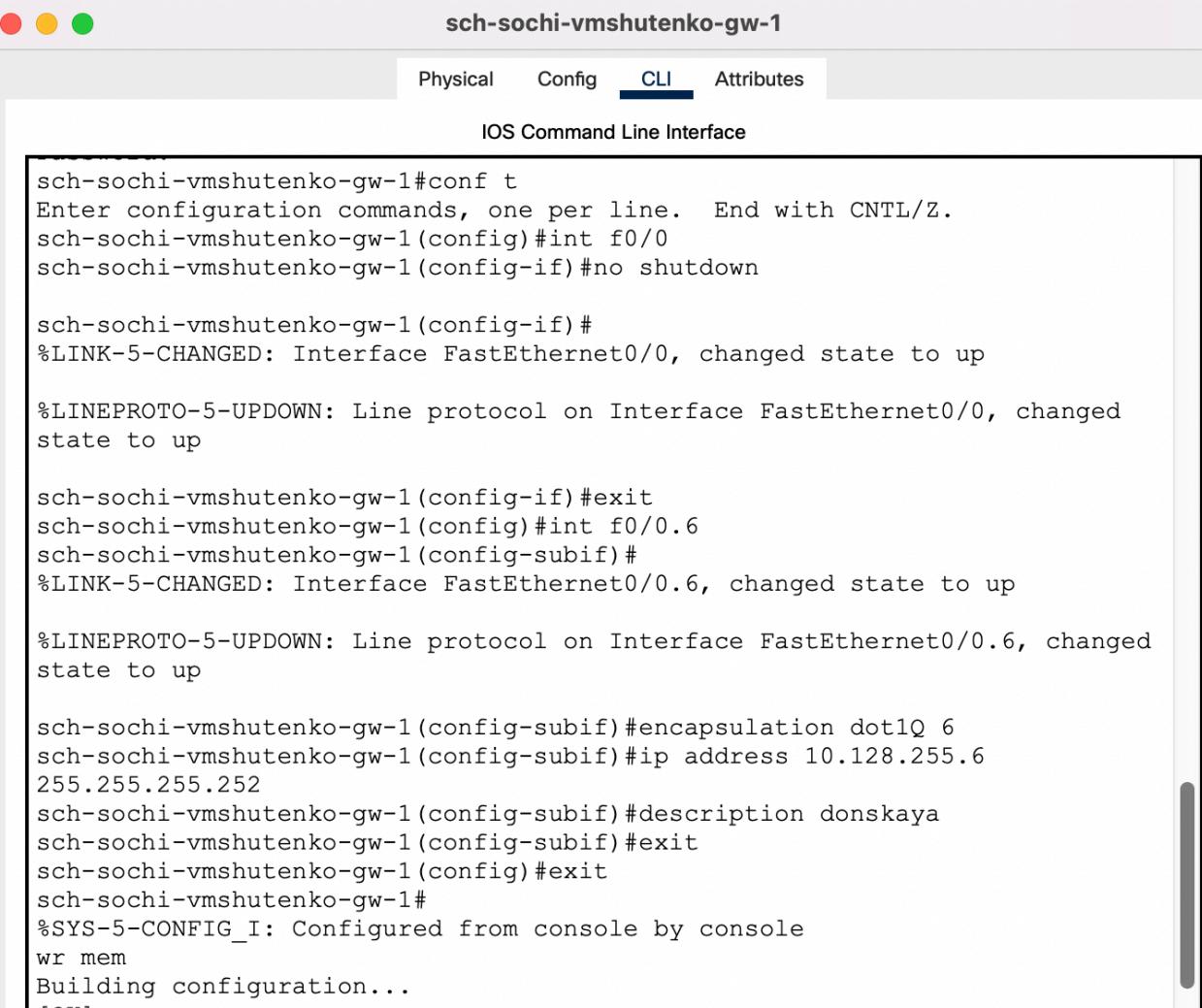
Рисунок 5. Настройка интерфейсов f0/23, f0/24, vlan6.

14.3.1.5. Настройка интерфейсов маршрутизатора sch-sochi-gw-1

```

sch-sochi-gw-1>enable
sch-sochi-gw-1#configure terminal
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)#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-vmshutenko-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
sch-sochi-vmshutenko-gw-1(config)#int f0/0
sch-sochi-vmshutenko-gw-1(config-if)#no shutdown

sch-sochi-vmshutenko-gw-1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

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

sch-sochi-vmshutenko-gw-1(config-if)#exit
sch-sochi-vmshutenko-gw-1(config)#int f0/0.6
sch-sochi-vmshutenko-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.6, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.6, changed
state to up

sch-sochi-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 6
sch-sochi-vmshutenko-gw-1(config-subif)#ip address 10.128.255.6
255.255.255.252
sch-sochi-vmshutenko-gw-1(config-subif)#description donskaya
sch-sochi-vmshutenko-gw-1(config-subif)#exit
sch-sochi-vmshutenko-gw-1(config)#exit
sch-sochi-vmshutenko-gw-1#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...

```

Command+F6 to exit CLI focus

Copy Paste

Рисунок 6. Настройка интерфейсов f0/0, f0/0.6.

14.3.2. Настройка площадки 42-го квартала

14.3.2.1. Настройка интерфейсов маршрутизатора msk-q42-gw-1

```
msk-q42-gw-1>enable
```

```
msk-q42-gw-1#configure terminal
```

```
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)#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)#interface f1/0
```

```
msk-q42-gw-1(config-if)#no shutdown
```

```
msk-q42-gw-1(config-if)#exit
```

```
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-vmshutenko-gw-1

Physical Config **CLI** Attributes

IOS Command Line Interface

User Access Verification

Password:

```
msk-q42-vmshutenko-gw-1>en
Password:
msk-q42-vmshutenko-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-q42-vmshutenko-gw-1(config)#int f0/0
msk-q42-vmshutenko-gw-1(config-if)#no shutdown

msk-q42-vmshutenko-gw-1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

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

msk-q42-vmshutenko-gw-1(config-if)#exit
msk-q42-vmshutenko-gw-1(config)#int f0/0.201
msk-q42-vmshutenko-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.201, changed state to up

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

msk-q42-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 201
msk-q42-vmshutenko-gw-1(config-subif)#ip address 10.129.0.1 255.255.255.0
msk-q42-vmshutenko-gw-1(config-subif)#description q42main
msk-q42-vmshutenko-gw-1(config-subif)#exit
msk-q42-vmshutenko-gw-1(config)#[
```

Рисунок 7. Настройка интерфейсов f0/0, f0/0.201.

The screenshot shows a terminal window with the title bar 'msk-q42-vmshutenko-gw-1'. Below the title bar is a navigation bar with tabs: 'Physical', 'Config', 'CLI' (which is highlighted in blue), and 'Attributes'. The main area of the window is labeled 'IOS Command Line Interface'. The CLI output is as follows:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.201, changed state to up

msk-q42-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 201
msk-q42-vmshutenko-gw-1(config-subif)#ip address 10.129.0.1 255.255.255.0
msk-q42-vmshutenko-gw-1(config-subif)#description q42main
msk-q42-vmshutenko-gw-1(config-subif)#exit
msk-q42-vmshutenko-gw-1(config)#int f1/0
msk-q42-vmshutenko-gw-1(config-if)#no shutdown

msk-q42-vmshutenko-gw-1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

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

msk-q42-vmshutenko-gw-1(config-if)#exit
msk-q42-vmshutenko-gw-1(config)#int f1/0.202
msk-q42-vmshutenko-gw-1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet1/0.202, changed state to up

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

msk-q42-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 202
msk-q42-vmshutenko-gw-1(config-subif)#ip address 10.129.1.1 255.255.255.0
msk-q42-vmshutenko-gw-1(config-subif)#description q42-management
msk-q42-vmshutenko-gw-1(config-subif)#exit
msk-q42-vmshutenko-gw-1(config)#+
```

Рисунок 8. Настройка интерфейсов f1/0, f1/0.22.

14.3.2.2. Настройка интерфейсов коммутатора msk-q42-sw-1

```
msk-q42-sw-1>enable
msk-q42-sw-1#configure terminal
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)#interface f0/1
msk-q42-sw-1(config-if)#switchport mode access
msk-q42-sw-1(config-if)#switchport access vlan 201
msk-q42-sw-1(config-if)#exit
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)#interface vlan201  
msk-q42-sw-1(config-if)#no shutdown  
msk-q42-sw-1(config-if)#exit
```

The screenshot shows a terminal window titled "msk-q42-vmshutenko-sw-1". The tab bar at the top includes "Physical", "Config", "CLI" (which is selected), and "Attributes". Below the tabs, it says "IOS Command Line Interface". The main area contains the following CLI session:

```
msk-q42-vmshutenko-sw-1#conf t  
Enter configuration commands, one per line. End with CNTL/Z.  
msk-q42-vmshutenko-sw-1(config)#int f0/24  
msk-q42-vmshutenko-sw-1(config-if)#switchport mode trunk  
  
msk-q42-vmshutenko-sw-1(config-if)#  
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed  
state to down  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed  
state to up  
  
msk-q42-vmshutenko-sw-1(config-if)#exit  
msk-q42-vmshutenko-sw-1(config)#int f0/1  
msk-q42-vmshutenko-sw-1(config-if)#switchport mode access  
msk-q42-vmshutenko-sw-1(config-if)#switchport access vlan 201  
% Access VLAN does not exist. Creating vlan 201  
msk-q42-vmshutenko-sw-1(config-if)#exit  
msk-q42-vmshutenko-sw-1(config)#vlan 201  
msk-q42-vmshutenko-sw-1(config-vlan)#name q42-maim  
msk-q42-vmshutenko-sw-1(config-vlan)#exit  
msk-q42-vmshutenko-sw-1(config)#int vlan201  
msk-q42-vmshutenko-sw-1(config-if)#  
%LINK-5-CHANGED: Interface Vlan201, changed state to up  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan201, changed state to  
up  
  
msk-q42-vmshutenko-sw-1(config-if)#no shutdown  
msk-q42-vmshutenko-sw-1(config-if)#exit  
msk-q42-vmshutenko-sw-1(config)#|
```

Command+F6 to exit CLI focus

Copy

Paste

Рисунок 9. Настройка интерфейсов f0/1, vlan201.

14.3.2.3. Настройка интерфейсов маршрутизирующего коммутатора msk-hostel-gw-1

```
msk-hostel-gw-1>enable  
msk-hostel-gw-1#configure terminal  
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)#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)#vlan 202
msk-hostel-gw-1(config-vlan)#name q42-management
msk-hostel-gw-1(config-vlan)#exit
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)#vlan 301
msk-hostel-gw-1(config-vlan)#name hostel-main
msk-hostel-gw-1(config-vlan)#exit
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-vmshutenko-gw-1

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Password:  
msk-hostel-vmshutenko-gw-1#conf t  
Enter configuration commands, one per line. End with CNTL/Z.  
msk-hostel-vmshutenko-gw-1(config)#int g0/1  
msk-hostel-vmshutenko-gw-1(config-if)#switchport trunk encapsulation dot1q  
msk-hostel-vmshutenko-gw-1(config-if)#switchport mode trunk  
  
msk-hostel-vmshutenko-gw-1(config-if)#  
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1,  
changed state to down  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1,  
changed state to up  
  
msk-hostel-vmshutenko-gw-1(config-if)#exit  
msk-hostel-vmshutenko-gw-1(config)#int f0/1  
msk-hostel-vmshutenko-gw-1(config-if)#switchport trunk encapsulation dot1q  
msk-hostel-vmshutenko-gw-1(config-if)#switchport mode trunk  
msk-hostel-vmshutenko-gw-1(config-if)#exit  
msk-hostel-vmshutenko-gw-1(config)#vlan 202  
msk-hostel-vmshutenko-gw-1(config-vlan)#name q42-management  
msk-hostel-vmshutenko-gw-1(config-vlan)#exit  
msk-hostel-vmshutenko-gw-1(config)#int vlan202  
msk-hostel-vmshutenko-gw-1(config-if)#  
%LINK-5-CHANGED: Interface Vlan202, changed state to up  
  
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan202, changed state to  
up  
  
msk-hostel-vmshutenko-gw-1(config-if)#no shutdown  
msk-hostel-vmshutenko-gw-1(config-if)#exit  
msk-hostel-vmshutenko-gw-1(config) #
```

Command+F6 to exit CLI focus

Copy

Paste

Рисунок 10. Настройка интерфейсов g0/1, f0/1, vlan202.

```
msk-hostel-vmshutenko-gw-1(config-if)#switchport mode trunk
msk-hostel-vmshutenko-gw-1(config-if)#exit
msk-hostel-vmshutenko-gw-1(config)#vlan 202
msk-hostel-vmshutenko-gw-1(config-vlan)#name q42-management
msk-hostel-vmshutenko-gw-1(config-vlan)#exit
msk-hostel-vmshutenko-gw-1(config)#int vlan202
msk-hostel-vmshutenko-gw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan202, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan202, changed state to
up

msk-hostel-vmshutenko-gw-1(config-if)#no shutdown
msk-hostel-vmshutenko-gw-1(config-if)#exit
msk-hostel-vmshutenko-gw-1(config)#int vlan202
msk-hostel-vmshutenko-gw-1(config-if)#ip address 10.129.1.2 255.255.255.0
msk-hostel-vmshutenko-gw-1(config-if)#exit
msk-hostel-vmshutenko-gw-1(config)#vlan 301
msk-hostel-vmshutenko-gw-1(config-vlan)#name hostel-main
msk-hostel-vmshutenko-gw-1(config-vlan)#exit
msk-hostel-vmshutenko-gw-1(config)#int vlan301
msk-hostel-vmshutenko-gw-1(config-if)#
%LINK-5-CHANGED: Interface Vlan301, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan301, changed state to
up

msk-hostel-vmshutenko-gw-1(config-if)#no shutdown
msk-hostel-vmshutenko-gw-1(config-if)#ip address 10.129.128.1
255.255.255.0
msk-hostel-vmshutenko-gw-1(config-if)#exit
msk-hostel-vmshutenko-gw-1(config)#

```

Command+F6 to exit CLI focus

Copy

Paste

Рисунок 11. Настройка интерфейсов vlan202, vlan301.

14.3.2.4. Настройка интерфейсов коммутатора msk-hostel-sw-1

```
msk-hostel-sw-1>enable
msk-hostel-sw-1#configure terminal
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)#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)#vlan 301
msk-hostel-sw-1(config-vlan)#name hostel-main
msk-hostel-sw-1(config-vlan)#exit
msk-hostel-sw-1(config)#interface vlan301
msk-hostel-sw-1(config-if)#no shutdown
msk-hostel-sw-1(config-if)#exit
```

The screenshot shows a terminal window titled "msk-hostel-vmshutenko-sw-1". The tab bar at the top includes "Physical", "Config", "CLI" (which is selected), and "Attributes". Below the title bar, it says "IOS Command Line Interface". The main area of the window displays the following CLI session:

```
User Access Verification

Password:
msk-hostel-vmshutenko-sw-1>en cisco
^
% Invalid input detected at '^' marker.

msk-hostel-vmshutenko-sw-1>en
Password:
msk-hostel-vmshutenko-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-hostel-vmshutenko-sw-1(config)#int g0/1
msk-hostel-vmshutenko-sw-1(config-if)#switchport mode trunk
msk-hostel-vmshutenko-sw-1(config-if)#exit
msk-hostel-vmshutenko-sw-1(config)#int f0/1
msk-hostel-vmshutenko-sw-1(config-if)#switchport mode access
msk-hostel-vmshutenko-sw-1(config-if)#switchport access vlan 301
msk-hostel-vmshutenko-sw-1(config-if)#exit
msk-hostel-vmshutenko-sw-1(config)#vlan 301
msk-hostel-vmshutenko-sw-1(config-vlan)#name hostel-main
msk-hostel-vmshutenko-sw-1(config-vlan)#exit
msk-hostel-vmshutenko-sw-1(config)#int vlan301
msk-hostel-vmshutenko-sw-1(config-if)#no shutdown
msk-hostel-vmshutenko-sw-1(config-if)#exit
msk-hostel-vmshutenko-sw-1(config) #
```

At the bottom of the window, there is a status message "Command+F6 to exit CLI focus" and two buttons: "Copy" and "Paste". A "Top" button is also visible.

Рисунок 12. Настройка интерфейсов f0/1, g0/1, vlan301.

14.3.3. Настройка площадки в Сочи

14.3.3.1. Настройка интерфейсов маршрутизатора sch-sochi-gw-1

```
sch-sochi-gw-1>enable
```

```
sch-sochi-gw-1#configure terminal
sch-sochi-gw-1(config)#interface f0/0.401
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)#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-vmshutenko-gw-1>en
Password:
sch-sochi-vmshutenko-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
sch-sochi-vmshutenko-gw-1(config)#int f0/0.401
sch-sochi-vmshutenko-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-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 401
sch-sochi-vmshutenko-gw-1(config-subif)#ip address 10.130.0.1
255.255.255.0
sch-sochi-vmshutenko-gw-1(config-subif)#description sochi-main
sch-sochi-vmshutenko-gw-1(config-subif)#exit
sch-sochi-vmshutenko-gw-1(config)#int f0/0.402
sch-sochi-vmshutenko-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-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 402
sch-sochi-vmshutenko-gw-1(config-subif)#ip address 10.130.1.1
255.255.255.0
sch-sochi-vmshutenko-gw-1(config-subif)#description sochi-management
sch-sochi-vmshutenko-gw-1(config-subif)#exit
sch-sochi-vmshutenko-gw-1(config)#

Command+F6 to exit CLI focus
```

Top

Copy

Re

Рисунок 13. Настройка интерфейсов f0/0.401, f0/0.402.

14.3.3.2. Настройка интерфейсов коммутатора sch-sochi-sw-1

```
sch-sochi-sw-1>enable
sch-sochi-sw-1#configure terminal
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
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)#exit
sch-sochi-sw-1(config)#interface vlan401
sch-sochi-sw-1(config-if)#no shutdown
sch-sochi-sw-1(config-if)#exit
```

The screenshot shows a terminal window titled "sch-sochi-vmshutenko-sw-1". The tab bar at the top includes "Physical", "Config", "CLI" (which is selected), and "Attributes". Below the tabs, it says "IOS Command Line Interface". The main area of the terminal displays the following configuration commands:

```
User Access Verification
Password:
sch-sochi-vmshutenko-sw-1>en
Password:
sch-sochi-vmshutenko-sw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
sch-sochi-vmshutenko-sw-1(config)#int f0/1
sch-sochi-vmshutenko-sw-1(config-if)#switchport mode access
sch-sochi-vmshutenko-sw-1(config-if)#switchport access vlan 401
% Access VLAN does not exist. Creating vlan 401
sch-sochi-vmshutenko-sw-1(config-if)#vlan 401
sch-sochi-vmshutenko-sw-1(config-vlan)#name sochi-main
sch-sochi-vmshutenko-sw-1(config-vlan)#exit
sch-sochi-vmshutenko-sw-1(config)#int vlan401
sch-sochi-vmshutenko-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-vmshutenko-sw-1(config-if)#no shutdown
sch-sochi-vmshutenko-sw-1(config-if)#exit
sch-sochi-vmshutenko-sw-1(config)#

Command+F6 to exit CLI focus
```

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

Рисунок 14. Настройка интерфейсов f0/1, vlan401.

14.3.4. Настройка маршрутизации между площадками

14.3.4.1. Настройка маршрутизатора msk-donskaya-gw-1

```
msk-donskaya-gw-1>enable
```

```
msk-donskaya-gw-1#configure terminal
```

```
msk-donskaya-gw-1(config)#ip route 10.129.0.0 255.255.0.0 10.128.255.2
```

```
msk-donskaya-gw-1(config)#ip route 10.130.0.0 255.255.0.0 10.128.255.6
```

The screenshot shows the Cisco IOS Command Line Interface (CLI) for a device named 'msk-donskaya-vmshutenko-gw-1'. The device has two physical ports: one yellow and one green. The interface includes tabs for Physical, Config, CLI (which is selected), and Attributes. A message at the top says 'Press RETURN to get started.' Below the interface, the configuration command 'ip route 10.130.0.0 255.255.0.0 10.128.255.6' is entered, followed by a password prompt and configuration mode entry.

```
msk-donskaya-vmshutenko-gw-1>en
Password:
msk-donskaya-vmshutenko-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-vmshutenko-gw-1(config)#ip route 10.129.0.0 255.255.0.0
10.128.255.2
msk-donskaya-vmshutenko-gw-1(config)#ip route 10.130.0.0 255.255.0.0
10.128.255.6
msk-donskaya-vmshutenko-gw-1(config) #
```

Command+F6 to exit CLI focus

[Copy](#)

[Paste](#)

[Top](#)

Рисунок 15. Настройка маршрутизатора msk-donskaya-gw-1.

14.3.4.2. Настройка маршрутизатора msk-q42-gw-1

```
msk-q42-gw-1>enable
```

```
msk-q42-gw-1#configure terminal
```

```
msk-q42-gw-1(config)#ip route 0.0.0.0 0.0.0.0 10.128.255.1
```

msk-q42-vmshutenko-gw-1

Physical Config **CLI** Attributes

IOS Command Line Interface

Press RETURN to get started.

User Access Verification

Password:

```
msk-q42-vmshutenko-gw-1>en
Password:
msk-q42-vmshutenko-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-q42-vmshutenko-gw-1(config)#ip route 0.0.0.0 0.0.0.0 10.128.255.1
msk-q42-vmshutenko-gw-1(config)#|
```

Command+F6 to exit CLI focus

Top

Copy

Pa

Рисунок 16. Настройка маршрутизатора msk-q42-gw-1.

14.3.4.3. Настройка маршрутизатора sch-sochi-gw-1

```
sch-sochi-gw-1>enable
```

```
sch-sochi-gw-1#configure terminal
```

```
sch-sochi-gw-1(config)#ip route 0.0.0.0 0.0.0.0 10.128.255.5
```

```

sch-sochi-vmshutenko-gw-1
Physical Config CLI Attributes

IOS Command Line Interface

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

sch-sochi-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 401
sch-sochi-vmshutenko-gw-1(config-subif)#ip address 10.130.0.1
255.255.255.0
sch-sochi-vmshutenko-gw-1(config-subif)#description sochi-main
sch-sochi-vmshutenko-gw-1(config-subif)#exit
sch-sochi-vmshutenko-gw-1(config)#int f0/0.402
sch-sochi-vmshutenko-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-vmshutenko-gw-1(config-subif)#encapsulation dot1Q 402
sch-sochi-vmshutenko-gw-1(config-subif)#ip address 10.130.1.1
255.255.255.0
sch-sochi-vmshutenko-gw-1(config-subif)#description sochi-management
sch-sochi-vmshutenko-gw-1(config-subif)#exit
sch-sochi-vmshutenko-gw-1(config)%^Z
sch-sochi-vmshutenko-gw-1#
%SYS-5-CONFIG_I: Configured from console by console
vr mem
Building configuration...
[OK]
sch-sochi-vmshutenko-gw-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
sch-sochi-vmshutenko-gw-1(config)#ip route 0.0.0.0 0.0.0.0 10.128.255.5
sch-sochi-vmshutenko-gw-1(config)#

```

Command+F6 to exit CLI focus

Copy

Paste

Top

Рисунок 17. Настройка маршрутизатора sch-sochi-gw-1.

14.3.5. Настройка маршрутизации на 42 квартале

14.3.5.1. Настройка маршрутизатора msk-q42-gw-1

msk-q42-gw-1>enable

msk-q42-gw-1#configure terminal

msk-q42-gw-1(config)#ip route 10.129.128.0 255.255.128.0 10.129.1.2

The screenshot shows a terminal window titled "msk-q42-vmshutenko-gw-1". The tab bar at the top includes "Physical", "Config", "CLI" (which is selected), and "Attributes". Below the title is the text "IOS Command Line Interface". The main area of the terminal displays the following configuration session:

```
User Access Verification  
Password:  
msk-q42-vmshutenko-gw-1>en  
Password:  
msk-q42-vmshutenko-gw-1#conf t  
Enter configuration commands, one per line. End with CNTL/Z.  
msk-q42-vmshutenko-gw-1(config)#ip route 0.0.0.0 0.0.0.0 10.128.255.1  
msk-q42-vmshutenko-gw-1(config)#^Z  
msk-q42-vmshutenko-gw-1#  
%SYS-5-CONFIG_I: Configured from console by console  
wr mem  
Building configuration...  
[OK]  
msk-q42-vmshutenko-gw-1#conf t  
Enter configuration commands, one per line. End with CNTL/Z.  
msk-q42-vmshutenko-gw-1(config)#ip route 10.129.128.0 255.255.128.0  
10.129.1.2  
msk-q42-vmshutenko-gw-1(config)#
```

At the bottom of the terminal window, there are buttons for "Command+F6 to exit CLI focus", "Copy", and "Pas". A "Top" button is also present.

Рисунок 18. Настройка маршрутизатора msk-q42-gw-1.

14.3.5.2. Настройка интерфейсов маршрутизирующего коммутатора

msk-hostel-gw-1

msk-hostel-gw-1>enable

msk-hostel-gw-1#configure terminal

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-vmshutenko-gw-1

Physical Config **CLI** Attributes

IOS Command Line Interface

```
User Access Verification

Password:

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

Command+F6 to exit CLI focus

Top

Copy

Рисунок 19. Настройка интерфейсов маршрутизирующего коммутатора msk-hostel-gw-1.

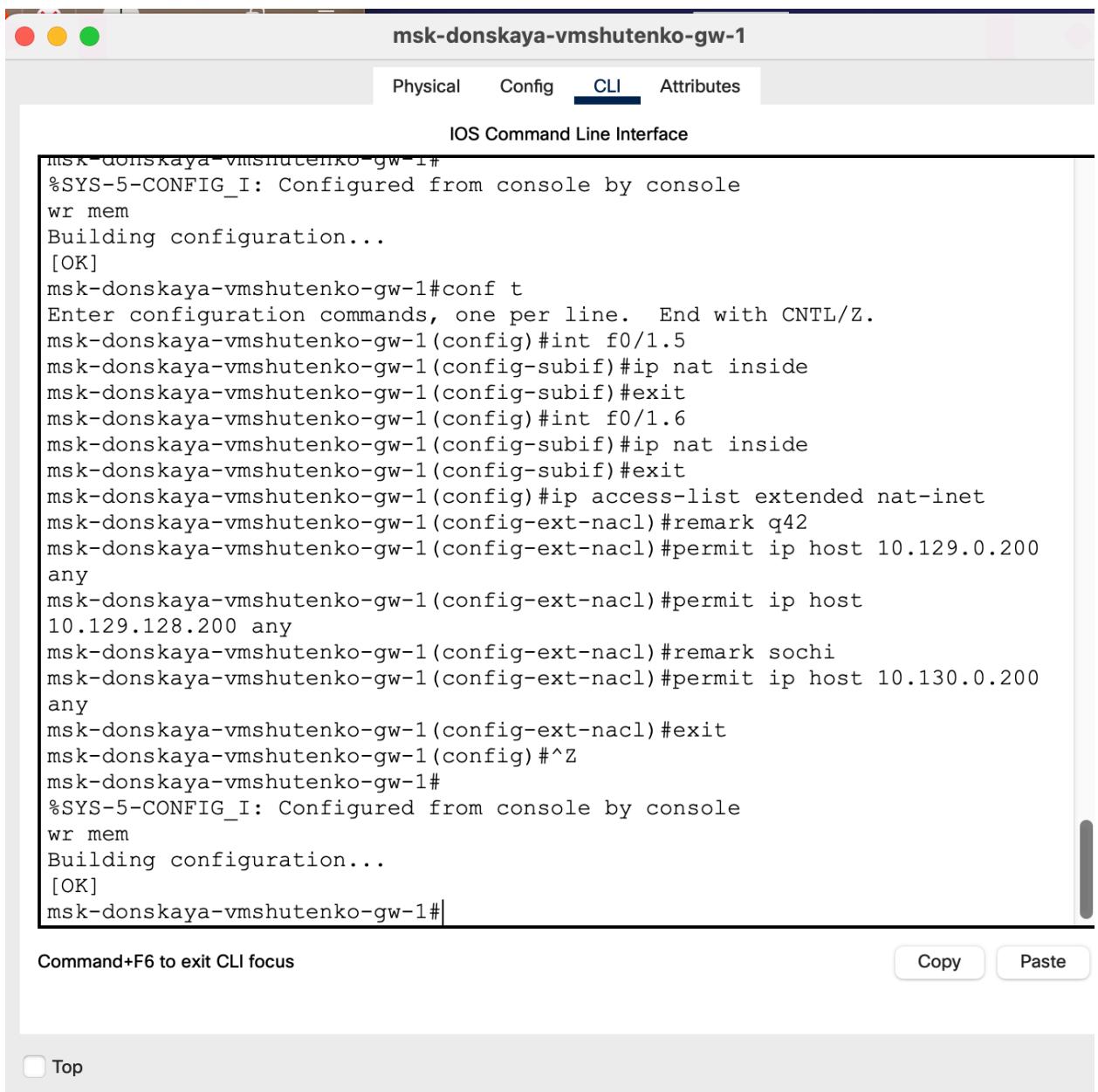
14.3.6. Настройка NAT на маршрутизаторе

```
msk-donskaya-gw-1
msk-donskaya-gw-1>enable
msk-donskaya-gw-1#configure terminal
msk-donskaya-gw-1(config)#interface f0/1.5
msk-donskaya-gw-1(config-subif)#ip nat inside
msk-donskaya-gw-1(config-subif)#exit
msk-donskaya-gw-1(config)#interface f0/1.6
```

```

msk-donskaya-gw-1(config-subif)#ip nat inside
msk-donskaya-gw-1(config-subif)#exit
msk-donskaya-gw-1(config)#ip access-list extended nat-inet
msk-donskaya-gw-1(config-ext-nacl)#remark q42
msk-donskaya-gw-1(config-ext-nacl)#permit ip host 10.129.0.200 any
msk-donskaya-gw-1(config-ext-nacl)#permit ip host 10.129.128.200 any
msk-donskaya-gw-1(config-ext-nacl)#remark sochi
msk-donskaya-gw-1(config-ext-nacl)#permit ip host 10.130.0.200 any
msk-donskaya-gw-1(config-ext-nacl)#exit

```



The screenshot shows the Cisco IOS Command Line Interface (CLI) running on a device named 'msk-donskaya-vmshutenko-gw-1'. The interface includes a title bar, a tab navigation bar (Physical, Config, CLI, Attributes), and a main text area for entering commands.

```

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

```

At the bottom of the CLI window, there are buttons for 'Copy' and 'Paste'. Below the CLI window, there is a status bar with the text 'Command+F6 to exit CLI focus' and a 'Top' button.

Рисунок 20. Настройка NAT на маршрутизаторе msk-donskaya-gw-1.

Ping:

```
msk-q42-vmshutenko-gw-1#ping 10.128.255.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.128.255.1, timeout is 2 seconds:
.!!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/0 ms

msk-q42-vmshutenko-gw-1#ping 10.128.255.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.128.255.1, timeout is 2 seconds:
.!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/4/21 ms

msk-q42-vmshutenko-gw-1#
```

Command+F6 to exit CLI focus

Top

Copy Paste

Контрольные вопросы

1. Приведите пример настройки статической маршрутизации между двумя подсетями организации.

Статическая маршрутизация — вид маршрутизации, при котором информация о маршрутах заносится в таблицы маршрутизации каждого маршрутизатора вручную администратором сети. Отсюда сразу же вытекает ряд недостатков. Прежде всего это очень плохая масштабируемость сетей, так как при добавлении $N+1$ сети потребуется сделать $2*(N+1)$ записей о маршрутах. Но, при использовании статических записей процессору маршрутизатора не требуется производить никаких расчетов, связанных с определением маршрутов – это плюс.

2. Опишите процесс обращения устройства из одного VLAN к устройству из другого VLAN.

Для связи устройств из одного VLAN с устройствами в другом VLAN надо использовать роутер. В основе технологии VLAN лежит стандарт IEEE 802.1Q. Он позволяет добавлять в Ethernet-трафик информацию о принадлежности передаваемых данных к той или иной виртуальной сети — теги VLAN. С их помощью коммутаторы и маршрутизаторы могут выделить из общего потока передаваемых по сети кадров те, что относятся к конкретному сегменту.

Технология VLAN даёт возможность организовать функциональный эквивалент нескольких LAN-сетей без использования набора из коммутаторов и кабелей, которые понадобились бы для их реализации в физическом виде. Физическое сетевое оборудование заменяется виртуальным.

3. Как проверить работоспособность маршрута?

Команда ping сначала посылает пакет эхо-запроса на адрес, а затем ожидает ответа. Эхо-тест является удачным только в том случае, если ECHO REQUEST попадает в место назначения, и место назначения может отправить ECHO REPLY к источнику эхо-теста в течение заданного временного интервала.

4. Как посмотреть таблицу маршрутизации?

Чтобы вывести таблицу маршрутизации необходимо выполнить команду show ip route.