Лабораторная работа №8

по дисциплине «Компьютерные сети»

Вариант IV

Студентка: Ишкова-Запольская О.О.

Группа: ИУ7-63БВ

Преподаватель: Рогозин Н.О.

I. Назначить адреса подсетей:

a) Подсеть 1: 192.168.x.0 /24

b) Подсеть 2: 192.168.x+1.0 /24

c) Подсеть 3: 192.168.x+2.0 /24

d) Подсеть 4: 192.168.x+3.0 /24

e) Подсеть 5 (В задаче III): 192.168.x+10.0 /24

Подсеть 1: 192.168.4.0 /24

Подсеть 2: 192.168.5.0 /24

Подсеть 3: 192.168.6.0 /24

Подсеть 4: 192.168.7.0 /24

Подсеть 5 (В задаче III): 192.168.14.0 /24

II. Настроить динамическую маршрутизацию в прилагаемом .pkt файле на стенде I через протокол RIPv2 так, чтобы пинг любым хостом или маршрутизатором любого другого хоста или маршрутизатора был успешным.

Представить отдельным .pkt файлом.

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
3207167K bytes of flash memory at bootflash:.
0K bytes of WebUI ODM Files at webui:.


Press RETURN to get started!


%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up


Router>en
Router#show ip protocols
Router#show ip rip database
Router#conf
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#show ip protocols
                ^
% Invalid input detected at '^' marker.

Router(config)#show ip rip database
                ^
% Invalid input detected at '^' marker.

Router(config)#conf t
%Invalid hex value
Router(config)#route rip
Router(config-router)#network 192.168.4.0
Router(config-router)#network 192.168.5.0
Router(config-router)#version 2
Router(config-router)#
```

Ctrl+F6 to exit CLI focus

Copy Paste

Top

Router0

Physical Config CLI Attributes

GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
GigabitEthernet0/0/0
GigabitEthernet0/0/1
GigabitEthernet0/0/2
Serial0/1/0
Serial0/1/1

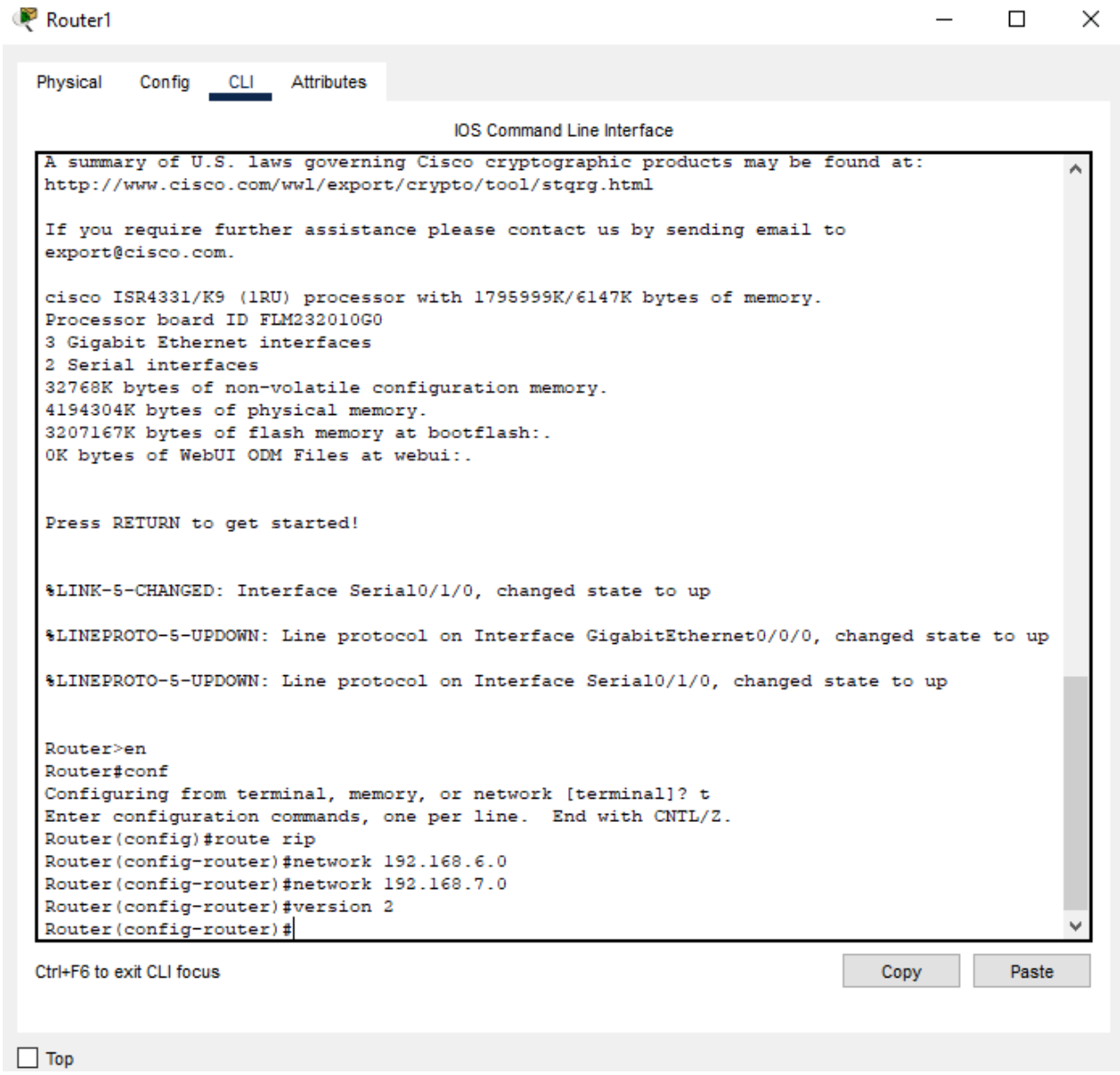
RIP Routing (v2)

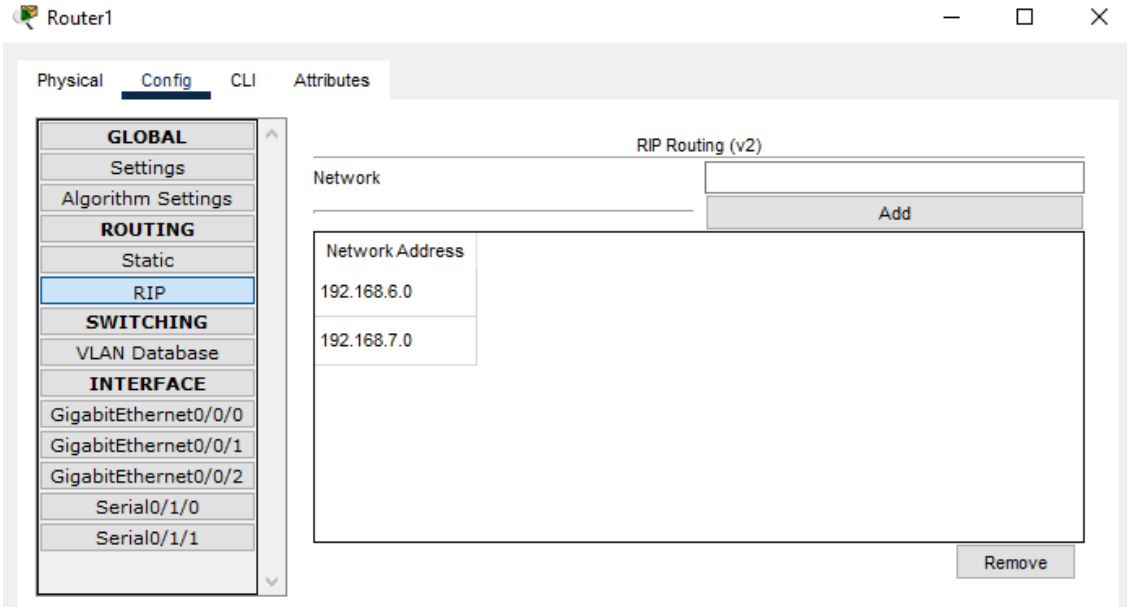
Network

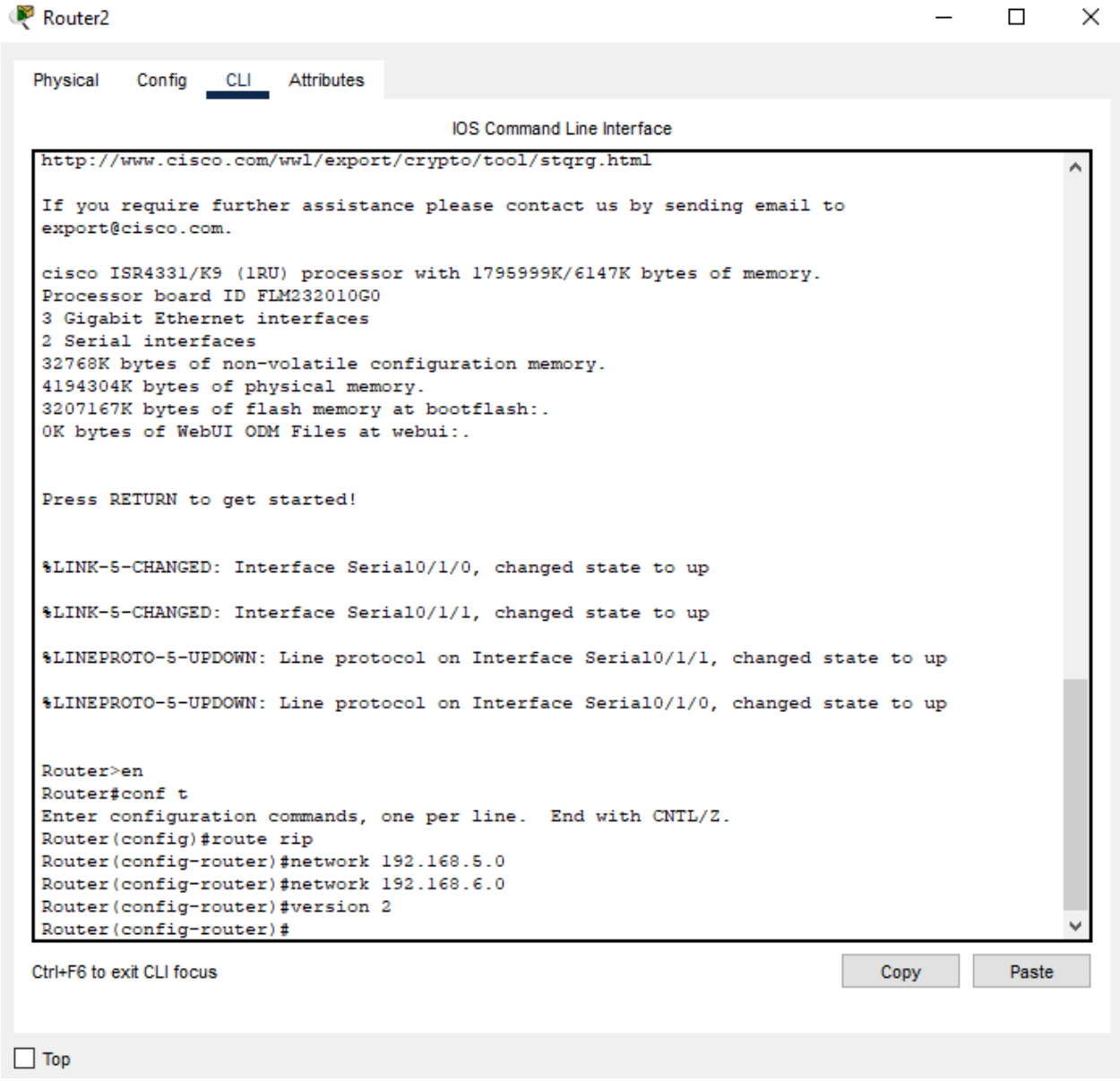
Add

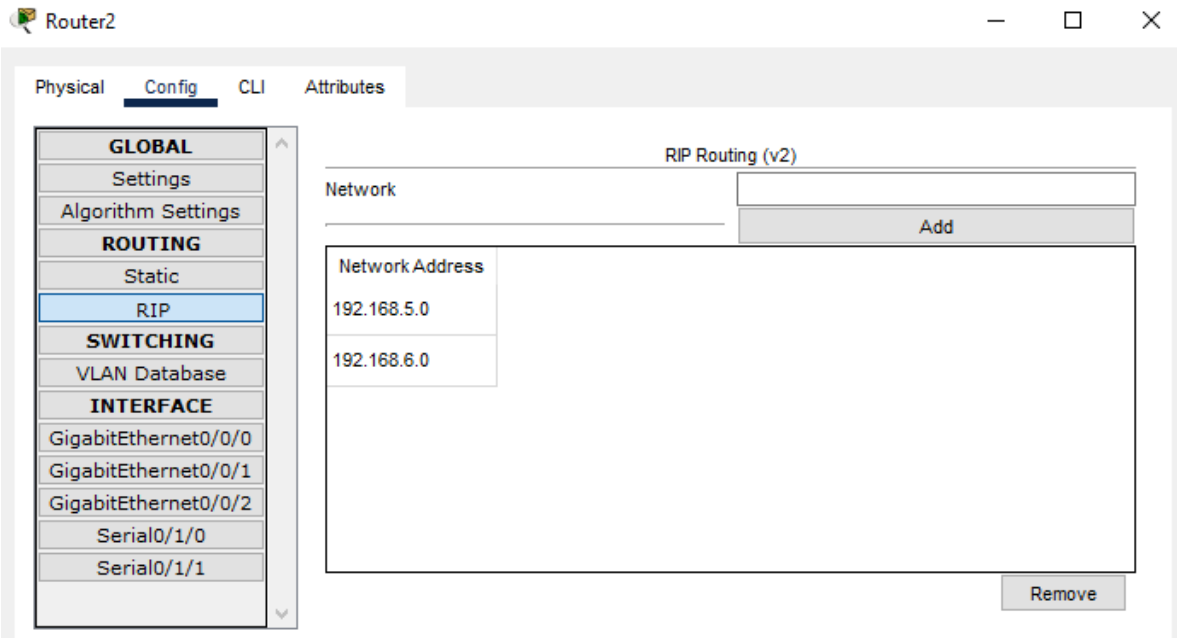
Network Address
192.168.4.0
192.168.5.0

Remove

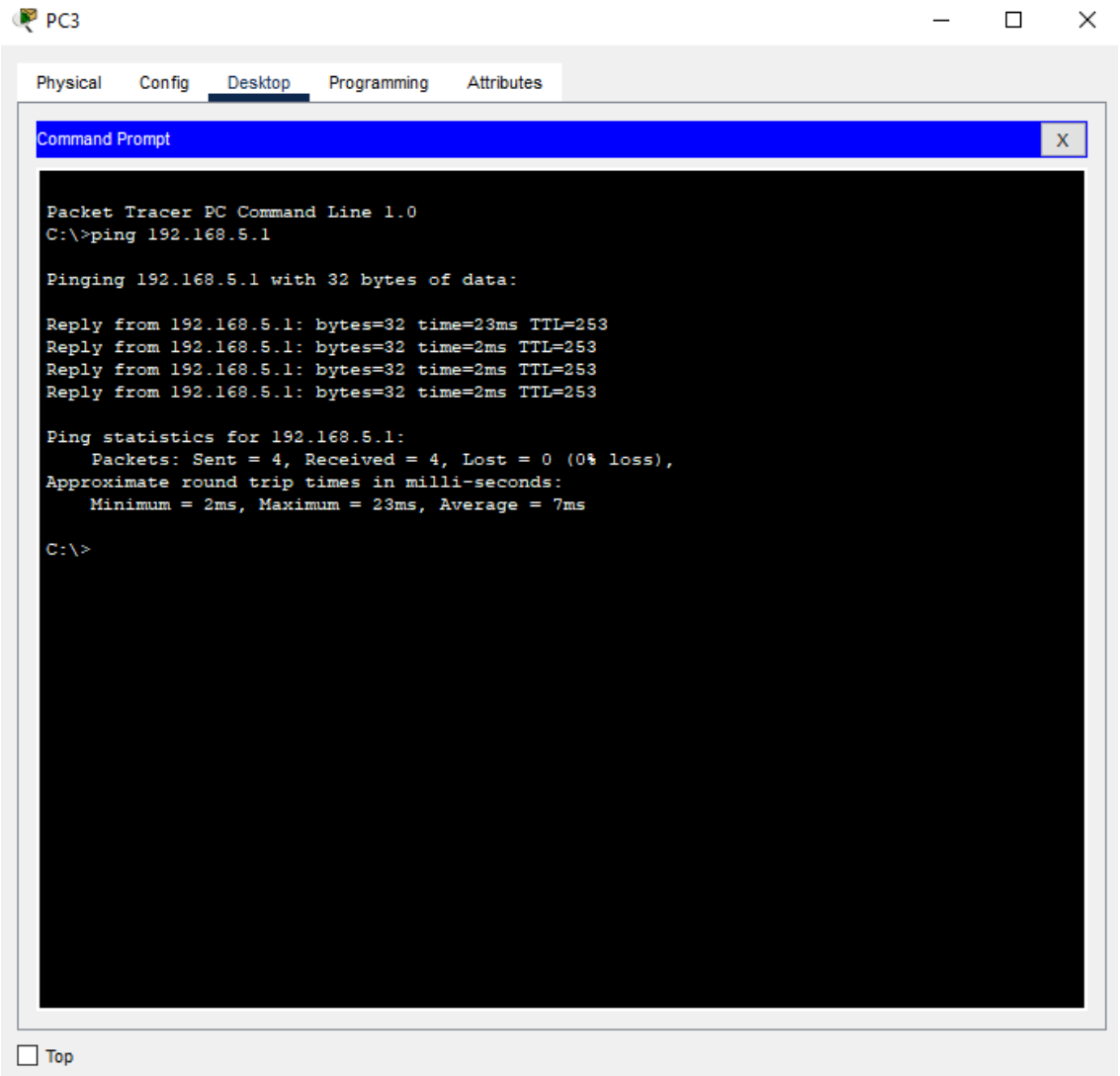

Router1
Physical
Config
CLI
Attributes
IOS Command Line Interface
A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html
If you require further assistance please contact us by sending email to
export@cisco.com.
cisco ISR4331/K9 (1RU) processor with 1795999K/6147K bytes of memory.
Processor board ID FLM232010G0
3 Gigabit Ethernet interfaces
2 Serial interfaces
32768K bytes of non-volatile configuration memory.
4194304K bytes of physical memory.
3207167K bytes of flash memory at bootflash:.
0K bytes of WebUI ODM Files at webui:.
Press RETURN to get started!
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up
Router>en
Router#conf
Configuring from terminal, memory, or network [terminal]? t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#route rip
Router(config-router)#network 192.168.6.0
Router(config-router)#network 192.168.7.0
Router(config-router)#version 2
Router(config-router)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


Router1
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
GigabitEthernet0/0/0
GigabitEthernet0/0/1
GigabitEthernet0/0/2
Serial0/1/0
Serial0/1/1
RIP Routing (v2)
Network
Add
Network Address
192.168.6.0
192.168.7.0
Remove


Router2
Physical
Config
CLI
Attributes
IOS Command Line Interface
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html
If you require further assistance please contact us by sending email to
export@cisco.com.
cisco ISR4331/K9 (1RU) processor with 1795999K/6147K bytes of memory.
Processor board ID FLM232010G0
3 Gigabit Ethernet interfaces
2 Serial interfaces
32768K bytes of non-volatile configuration memory.
4194304K bytes of physical memory.
3207167K bytes of flash memory at bootflash:.
0K bytes of WebUI ODM Files at webui:.
Press RETURN to get started!
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up
%LINK-5-CHANGED: Interface Serial0/1/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#route rip
Router(config-router)#network 192.168.5.0
Router(config-router)#network 192.168.6.0
Router(config-router)#version 2
Router(config-router)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

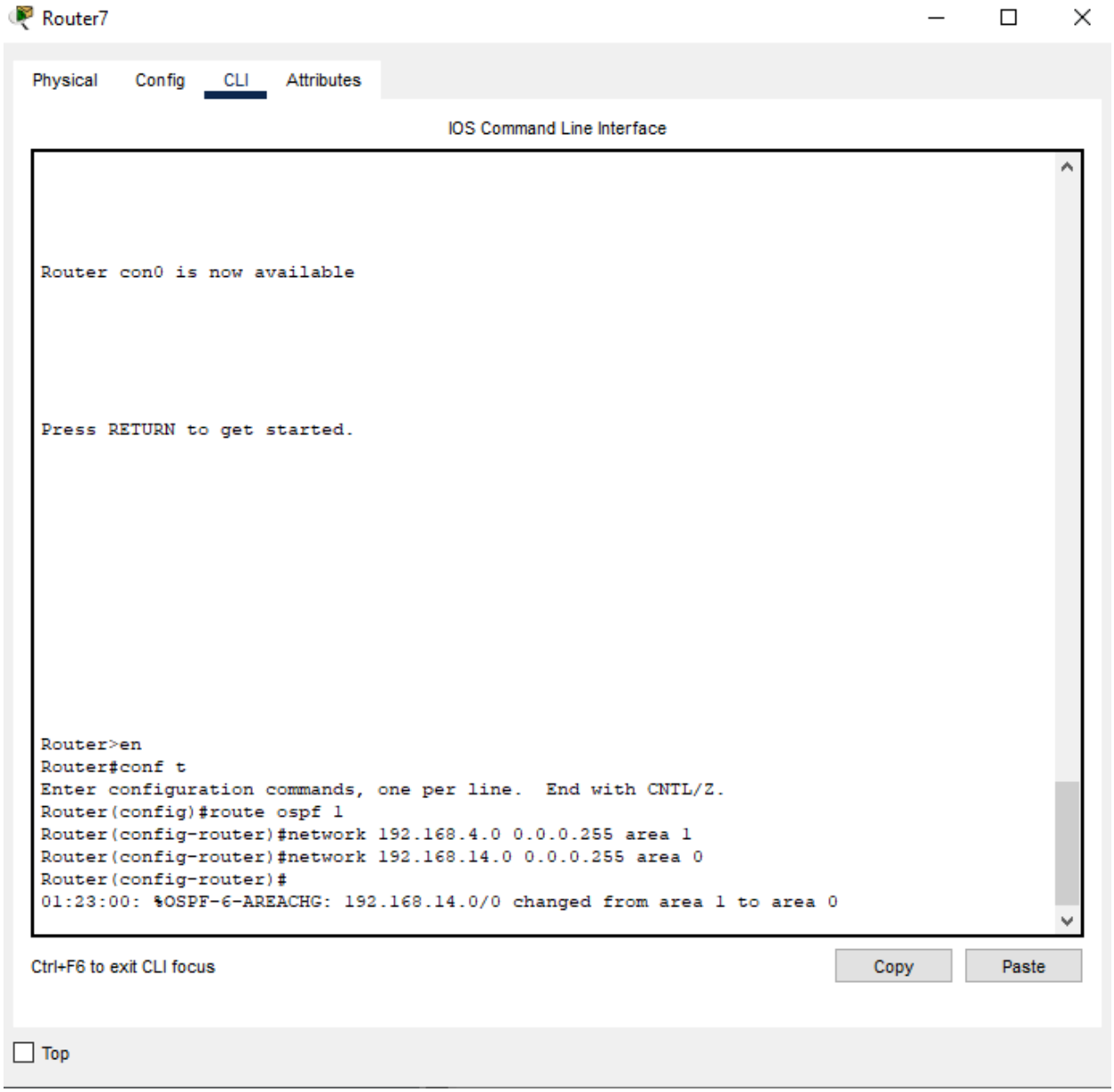

Router2
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
GigabitEthernet0/0/0
GigabitEthernet0/0/1
GigabitEthernet0/0/2
Serial0/1/0
Serial0/1/1
RIP Routing (v2)
Network
Add
Network Address
192.168.5.0
192.168.6.0
Remove

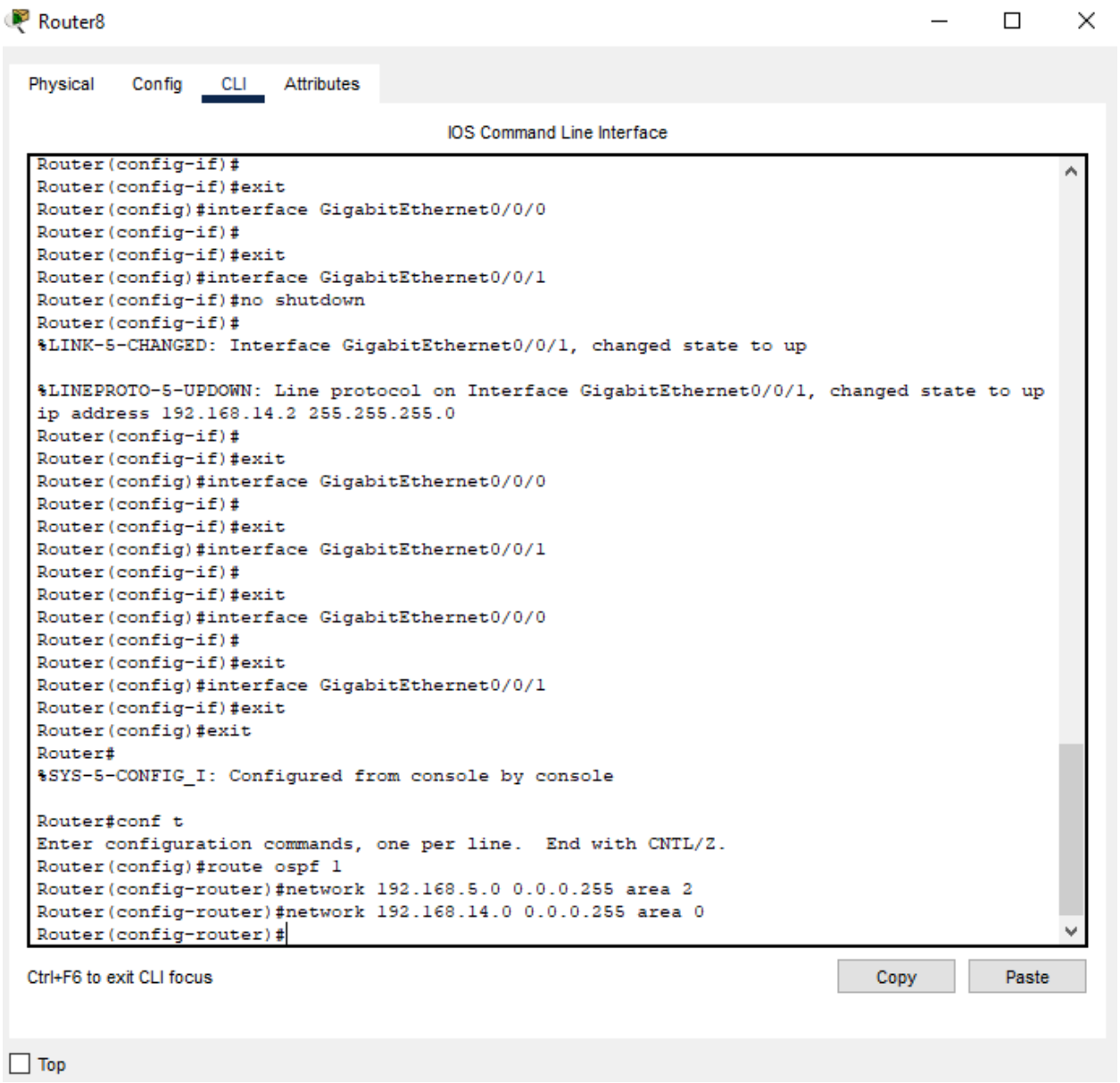
Пример ping:

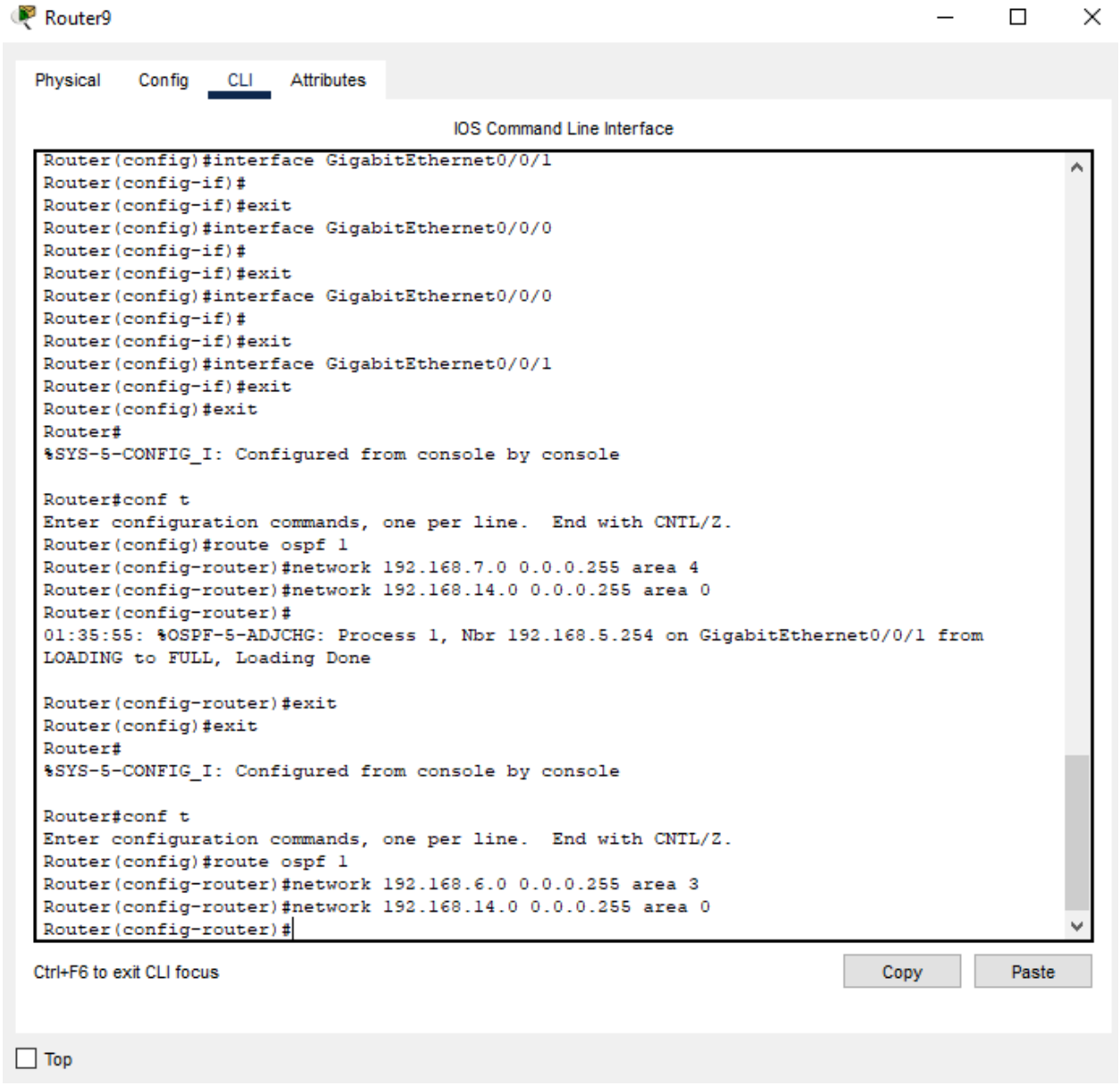


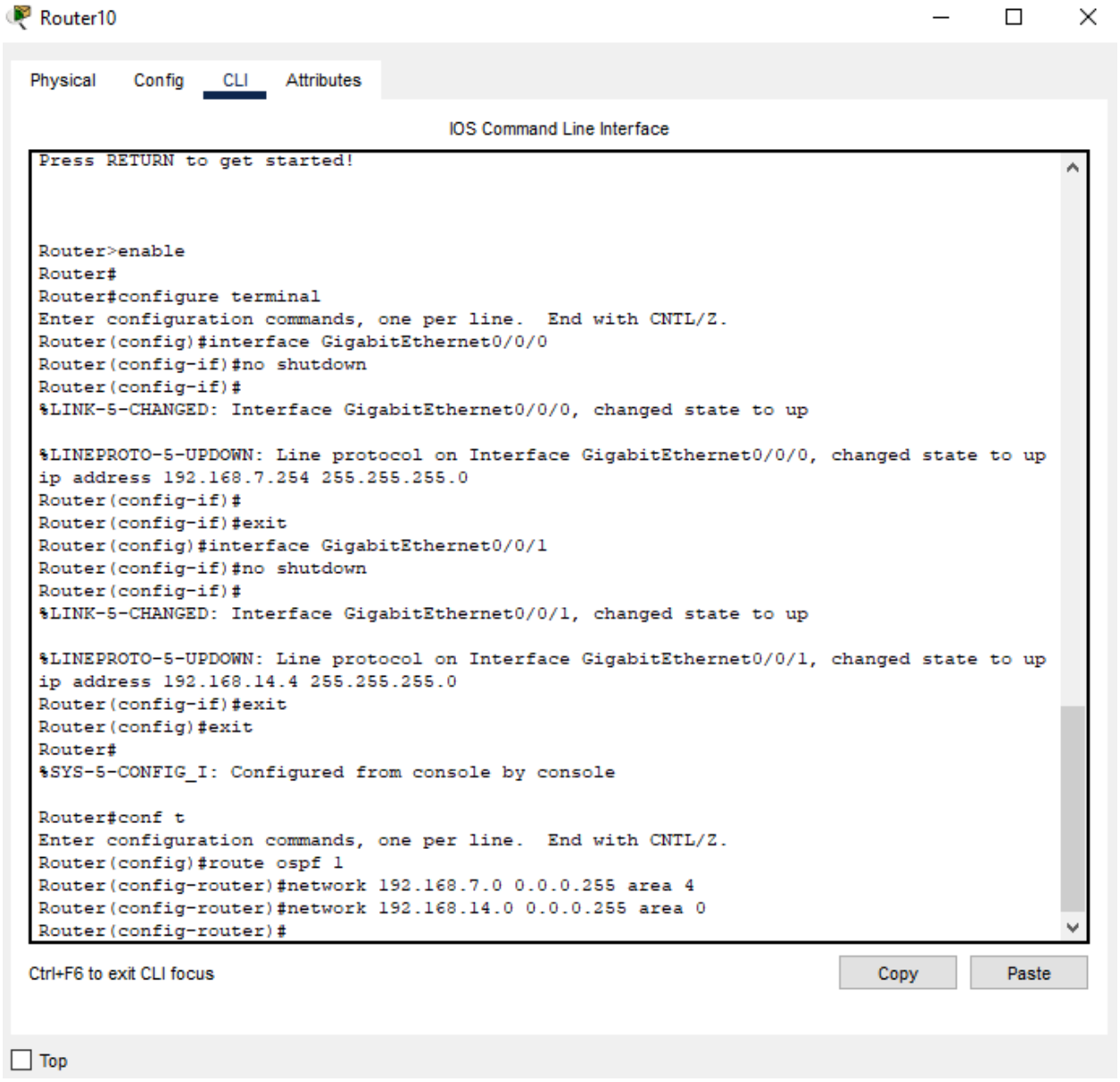
III. Настроить динамическую маршрутизацию в сети в прилагаемом .pkt файле на стенде II через протокол OSPF так, чтобы пинг любым хостом или маршрутизатором любого другого хоста или маршрутизатора был успешным. Разделить при этом сеть на области OSPF в соответствии со схемой. Выполнить указания в лабораторной работе.

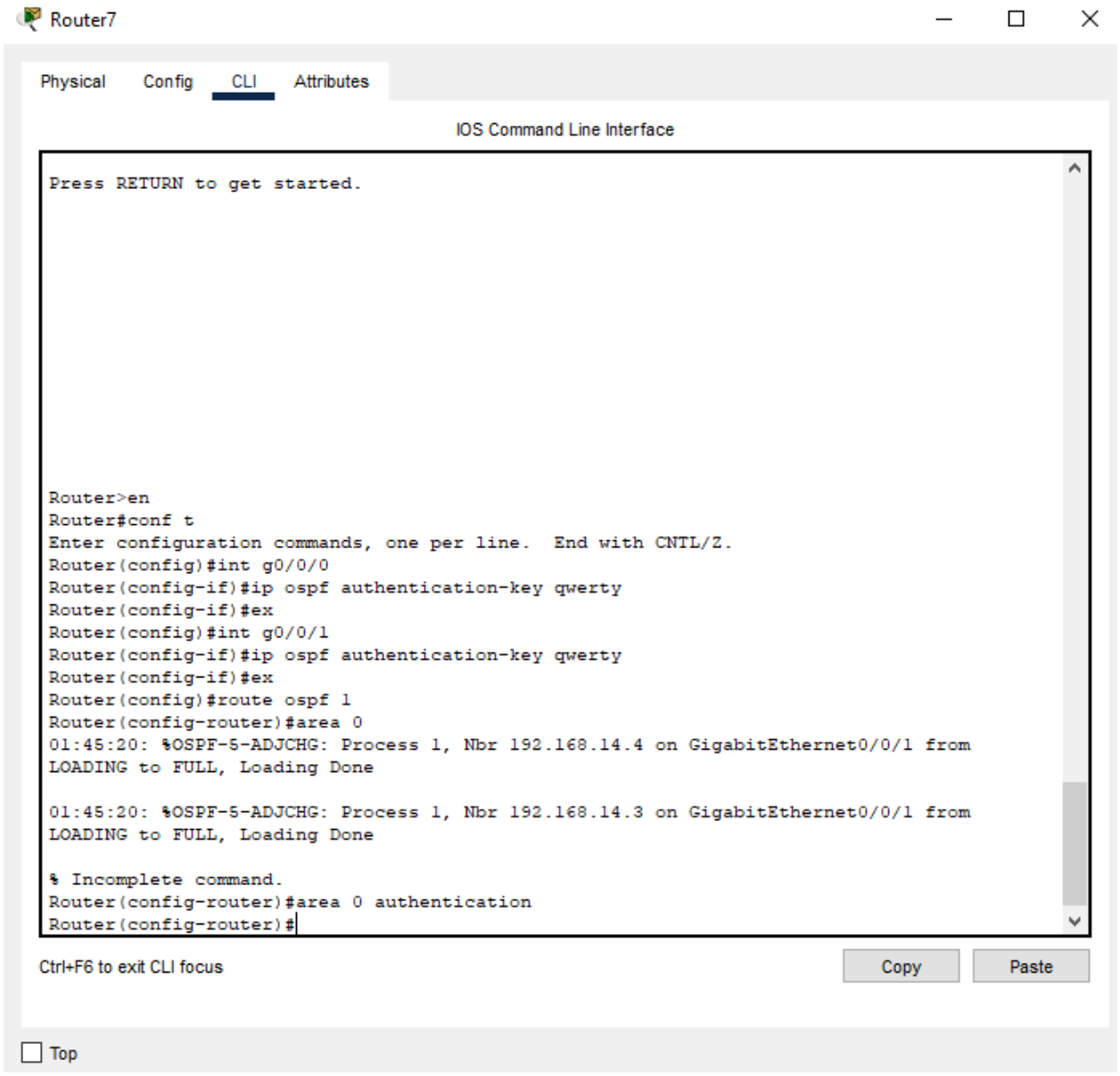
Представить отдельным .pkt файлом.

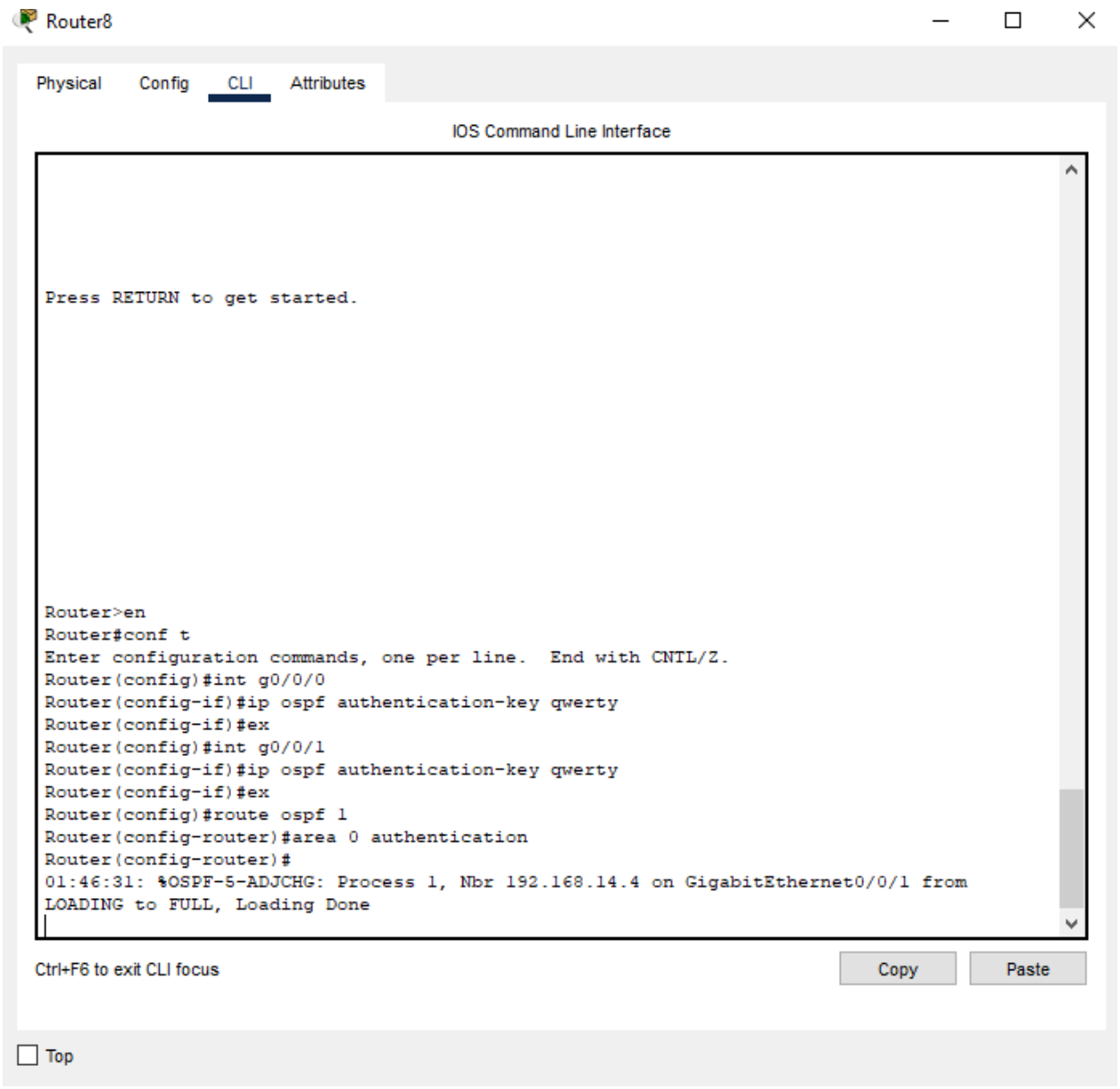

Router7
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router con0 is now available
Press RETURN to get started.
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#route ospf 1
Router(config-router)#network 192.168.4.0 0.0.0.255 area 1
Router(config-router)#network 192.168.14.0 0.0.0.255 area 0
Router(config-router)#
01:23:00: %OSPF-6-AREACHG: 192.168.14.0/0 changed from area 1 to area 0
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

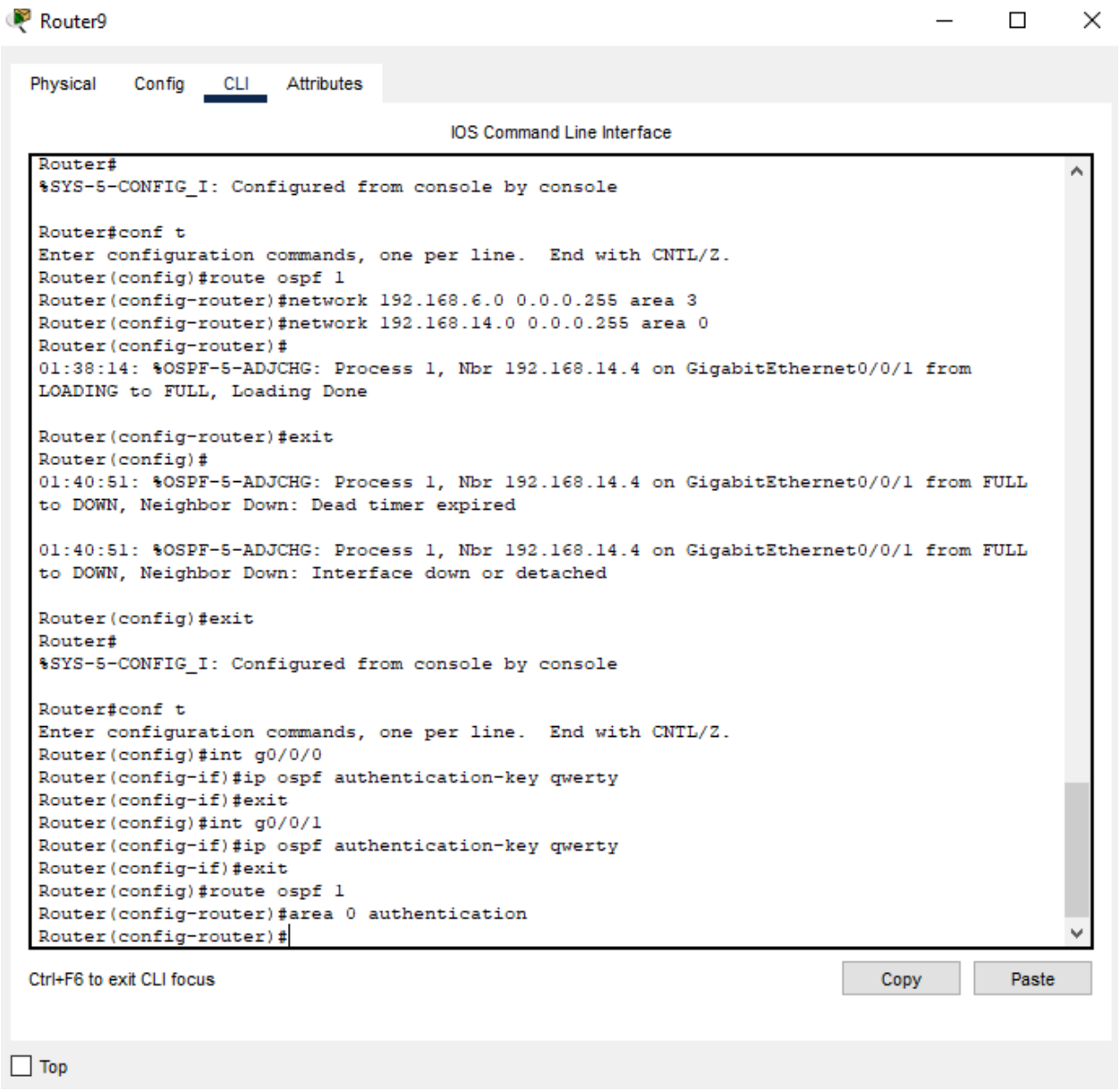

Router8
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/1
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up
ip address 192.168.14.2 255.255.255.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/1
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#route ospf 1
Router(config-router)#network 192.168.5.0 0.0.0.255 area 2
Router(config-router)#network 192.168.14.0 0.0.0.255 area 0
Router(config-router)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

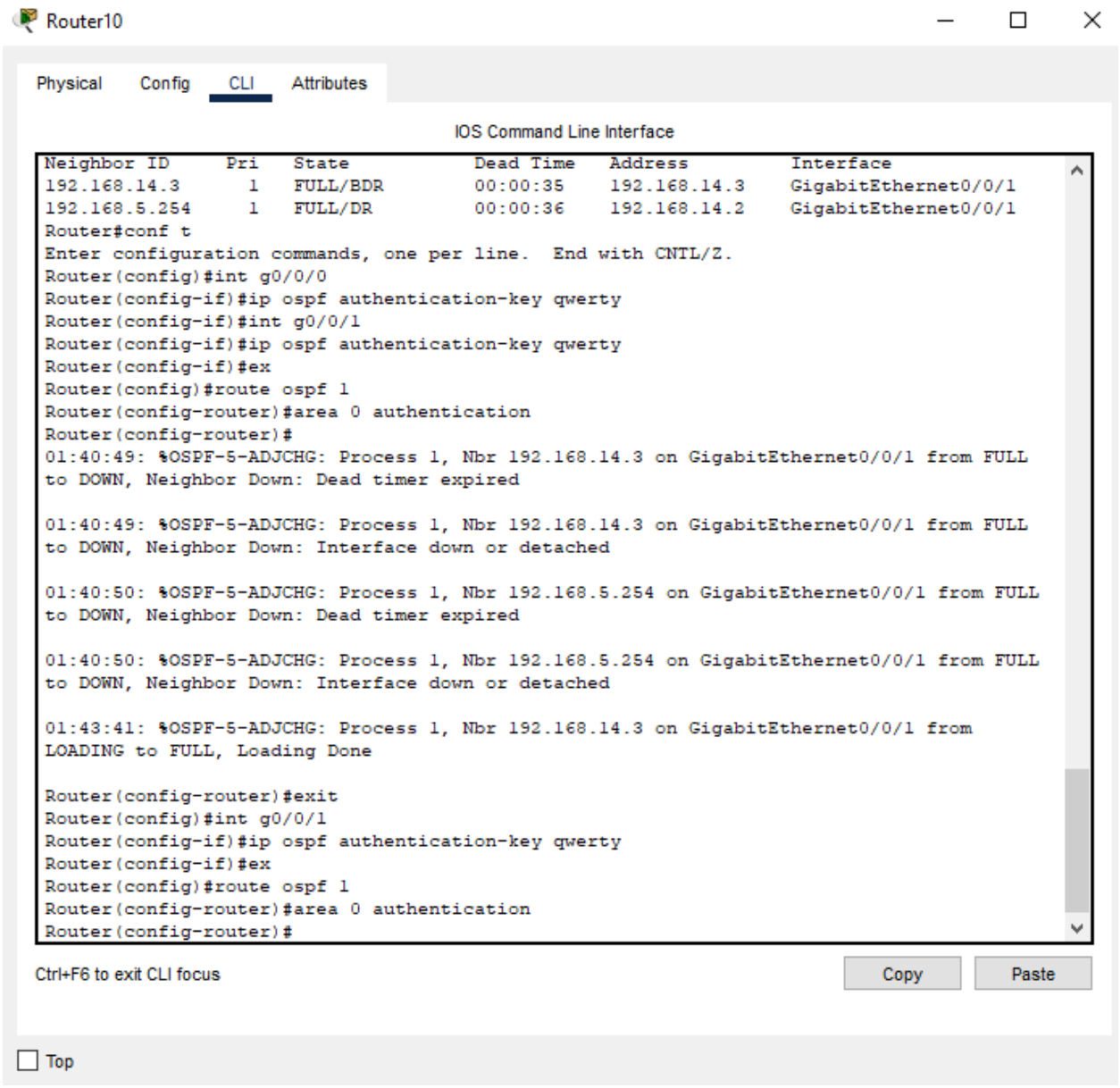

Router9
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router(config)#interface GigabitEthernet0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/1
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#route ospf 1
Router(config-router)#network 192.168.7.0 0.0.0.255 area 4
Router(config-router)#network 192.168.14.0 0.0.0.255 area 0
Router(config-router)#
01:35:55: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.5.254 on GigabitEthernet0/0/1 from
LOADING to FULL, Loading Done
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#route ospf 1
Router(config-router)#network 192.168.6.0 0.0.0.255 area 3
Router(config-router)#network 192.168.14.0 0.0.0.255 area 0
Router(config-router)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


Router10
Physical
Config
CLI
Attributes
IOS Command Line Interface
Press RETURN to get started!
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up
ip address 192.168.7.254 255.255.255.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/1
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up
ip address 192.168.14.4 255.255.255.0
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#route ospf 1
Router(config-router)#network 192.168.7.0 0.0.0.255 area 4
Router(config-router)#network 192.168.14.0 0.0.0.255 area 0
Router(config-router)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


Router7
Physical
Config
CLI
Attributes
IOS Command Line Interface
Press RETURN to get started.
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int g0/0/0
Router(config-if)#ip ospf authentication-key qwerty
Router(config-if)#ex
Router(config)#int g0/0/1
Router(config-if)#ip ospf authentication-key qwerty
Router(config-if)#ex
Router(config)#route ospf 1
Router(config-router)#area 0
01:45:20: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.14.4 on GigabitEthernet0/0/1 from
LOADING to FULL, Loading Done
01:45:20: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.14.3 on GigabitEthernet0/0/1 from
LOADING to FULL, Loading Done
% Incomplete command.
Router(config-router)#area 0 authentication
Router(config-router)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


Router8
Physical
Config
CLI
Attributes
IOS Command Line Interface
Press RETURN to get started.
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int g0/0/0
Router(config-if)#ip ospf authentication-key qwerty
Router(config-if)#ex
Router(config)#int g0/0/1
Router(config-if)#ip ospf authentication-key qwerty
Router(config-if)#ex
Router(config)#route ospf 1
Router(config-router)#area 0 authentication
Router(config-router)#
01:46:31: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.14.4 on GigabitEthernet0/0/1 from
LOADING to FULL, Loading Done
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


Router9
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#route ospf 1
Router(config-router)#network 192.168.6.0 0.0.0.255 area 3
Router(config-router)#network 192.168.14.0 0.0.0.255 area 0
Router(config-router)#
01:38:14: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.14.4 on GigabitEthernet0/0/1 from
LOADING to FULL, Loading Done
Router(config-router)#exit
Router(config)#
01:40:51: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.14.4 on GigabitEthernet0/0/1 from FULL
to DOWN, Neighbor Down: Dead timer expired
01:40:51: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.14.4 on GigabitEthernet0/0/1 from FULL
to DOWN, Neighbor Down: Interface down or detached
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int g0/0/0
Router(config-if)#ip ospf authentication-key qwerty
Router(config-if)#exit
Router(config)#int g0/0/1
Router(config-if)#ip ospf authentication-key qwerty
Router(config-if)#exit
Router(config)#route ospf 1
Router(config-router)#area 0 authentication
Router(config-router)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top



Информация о статусе соседних устройств:

```
Router>en
Router#sh ip ospf neighbor

Neighbor ID     Pri   State           Dead Time   Address         Interface
192.168.14.1      1   2WAY/DROTHER    00:00:34    192.168.14.1    GigabitEthernet0/0/1
192.168.14.4      1   FULL/DR         00:00:34    192.168.14.4    GigabitEthernet0/0/1
192.168.14.3      1   FULL/BDR        00:00:34    192.168.14.3    GigabitEthernet0/0/1
Router#

Router>en
Router#sh ip ospf neighbor

Neighbor ID     Pri   State           Dead Time   Address         Interface
192.168.14.2      1   FULL/DROTHER    00:00:35    192.168.14.2    GigabitEthernet0/0/1
192.168.14.1      1   FULL/DROTHER    00:00:34    192.168.14.1    GigabitEthernet0/0/1
192.168.14.4      1   FULL/DR         00:00:34    192.168.14.4    GigabitEthernet0/0/1
Router#
```

ABR – роутер 7, 8

BDR – роутер 9

DR – роутер 10