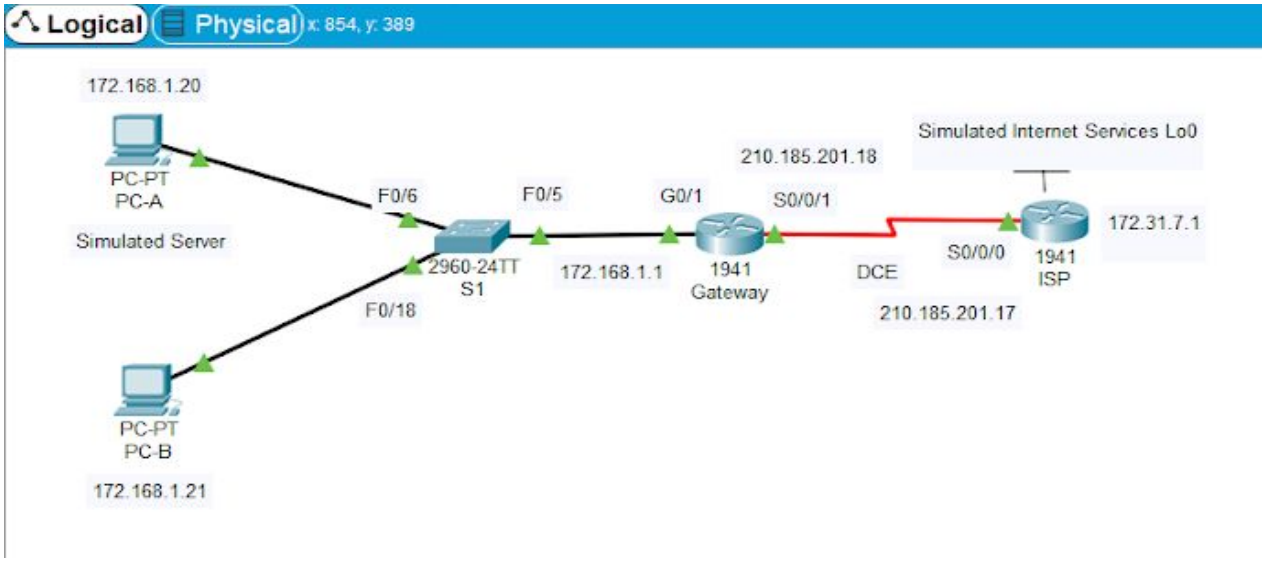
Group No:6
Bhargavi Poyekar: 2018130040
Mahipal Purohit: 2018130041
Pritam Rao: 2018130044

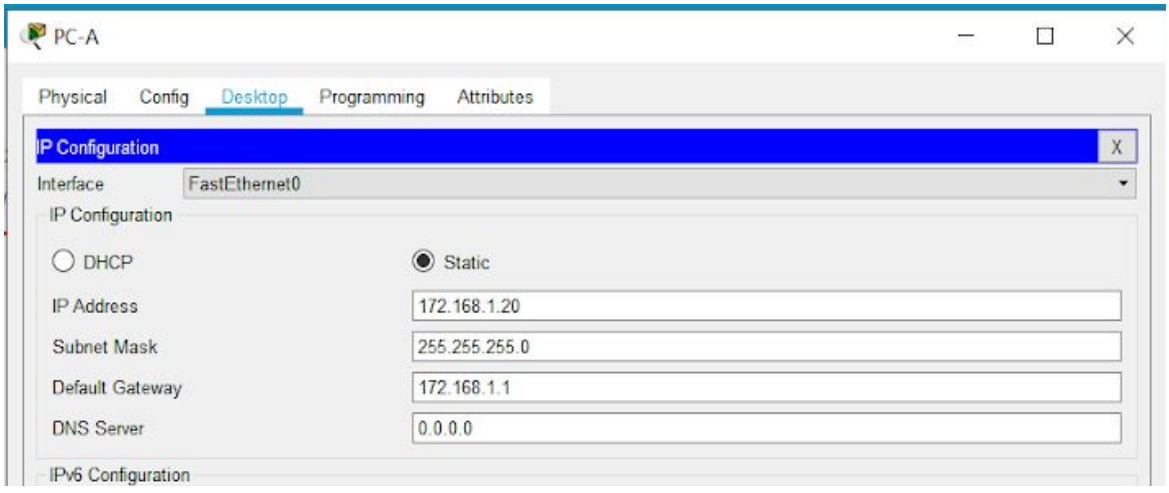
DCCN LAB ISE

Task 1:

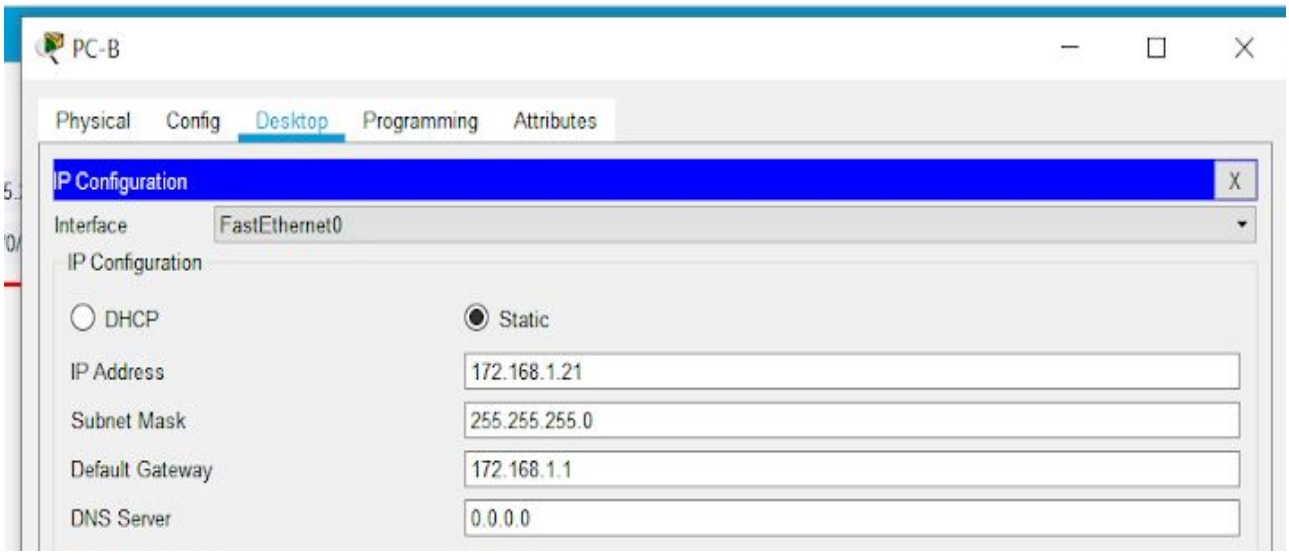
Final Topology:



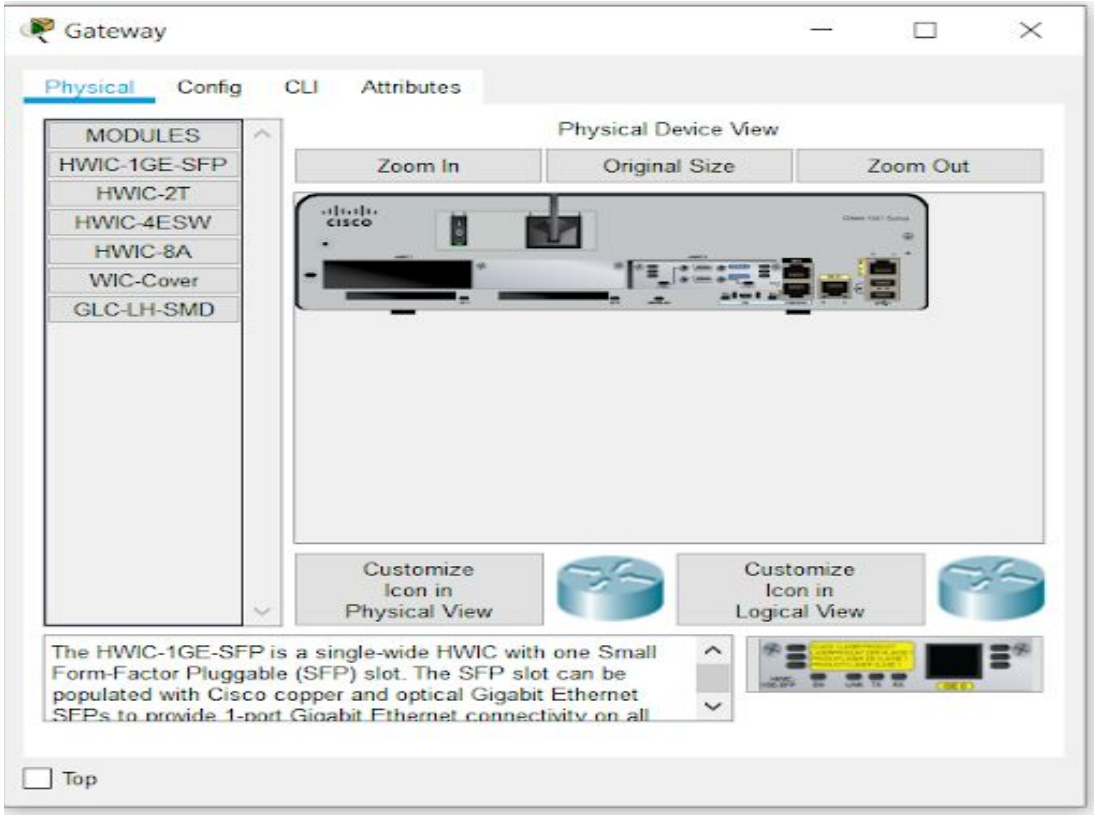
PC-A configuration:

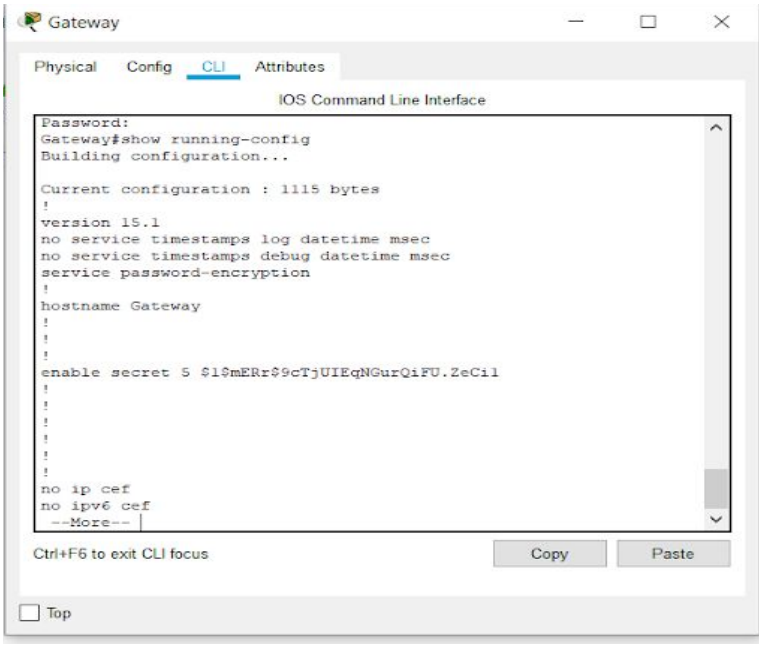


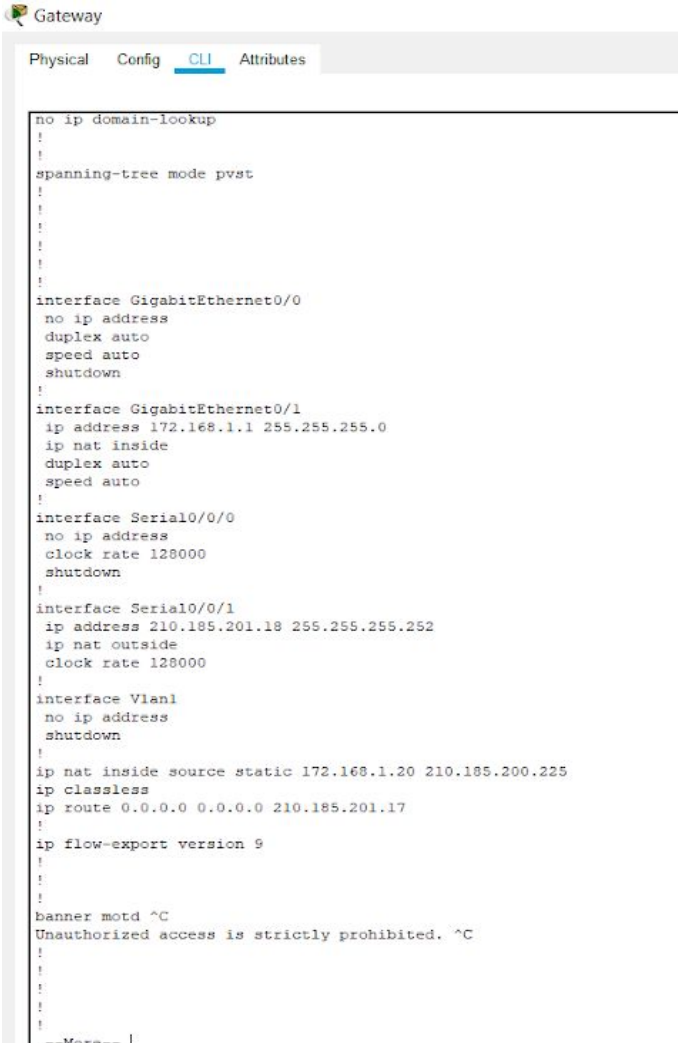
PC-B configuration:



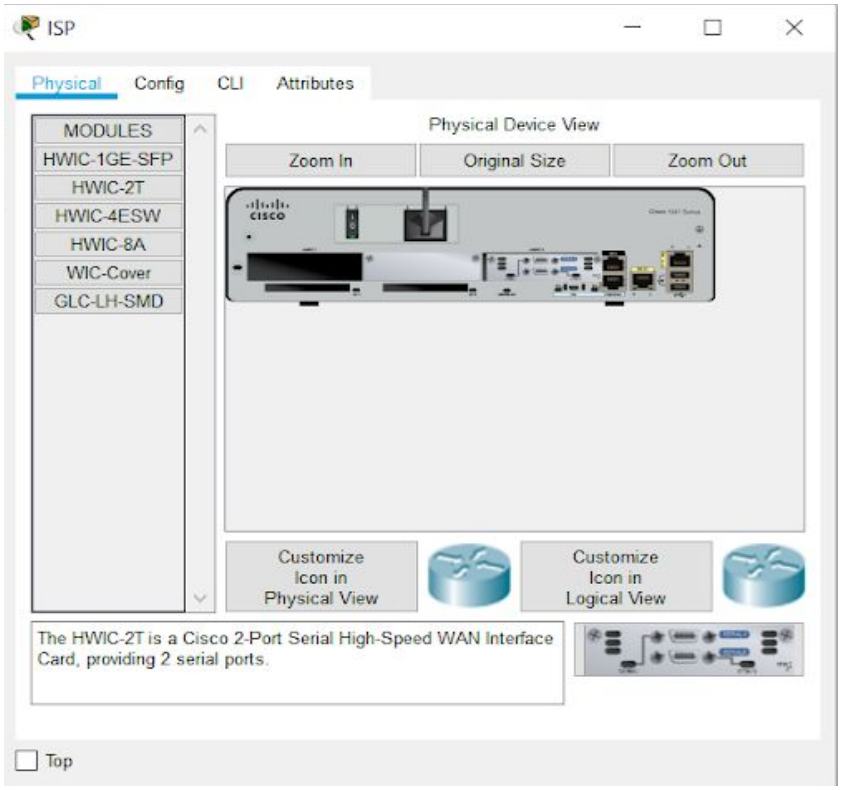
Gateway configuration:

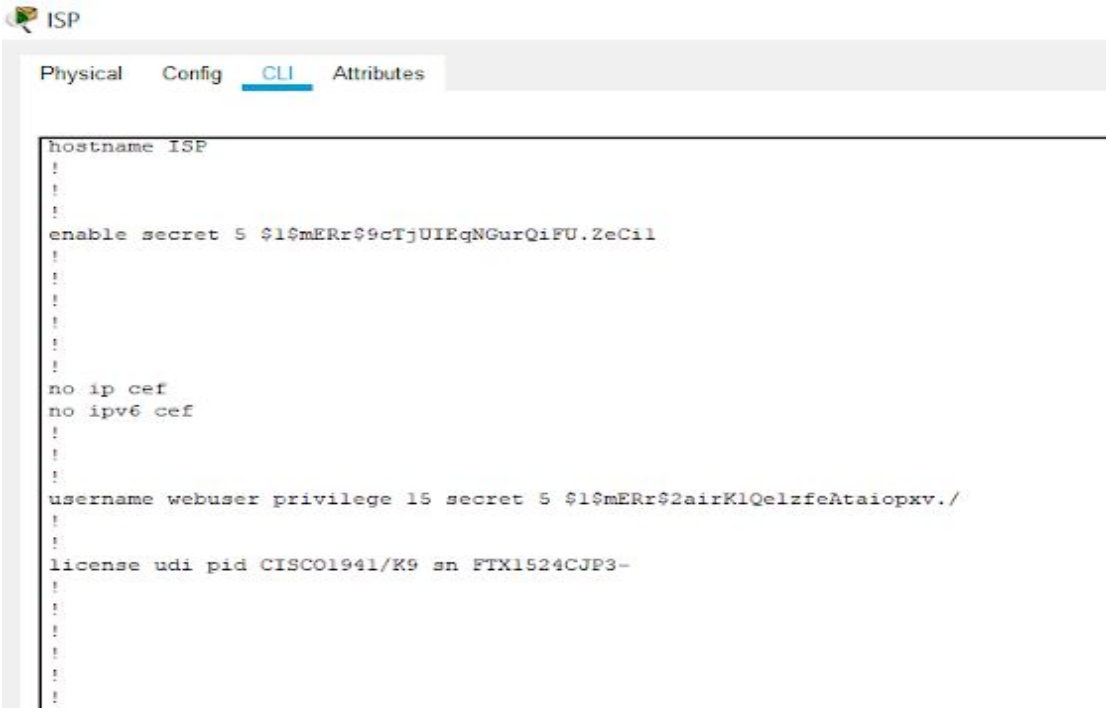



Gateway
Physical
Config
CLI
Attributes
IOS Command Line Interface
Password:
Gateway$show running-config
Building configuration...
Current configuration : 1115 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname Gateway
!
!
!
enable secret 5 1mERr$9cTjUIEqNGurQiFU.ZeCi1
!
!
!
!
!
!
no ip cef
no ipv6 cef
--More--
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


Gateway
Physical
Config
CLI
Attributes
no ip domain-lookup
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface GigabitEthernet0/0
no ip address
duplex auto
speed auto
shutdown
!
interface GigabitEthernet0/1
ip address 172.168.1.1 255.255.255.0
ip nat inside
duplex auto
speed auto
!
interface Serial0/0/0
no ip address
clock rate 128000
shutdown
!
interface Serial0/0/1
ip address 210.185.201.18 255.255.255.252
ip nat outside
clock rate 128000
!
interface Vlan1
no ip address
shutdown
!
ip nat inside source static 172.168.1.20 210.185.200.225
ip classless
ip route 0.0.0.0 0.0.0.0 210.185.201.17
!
ip flow-export version 9
!
!
!
banner motd ^C
Unauthorized access is strictly prohibited. ^C
!
!
!
!
!

ISP configuration:





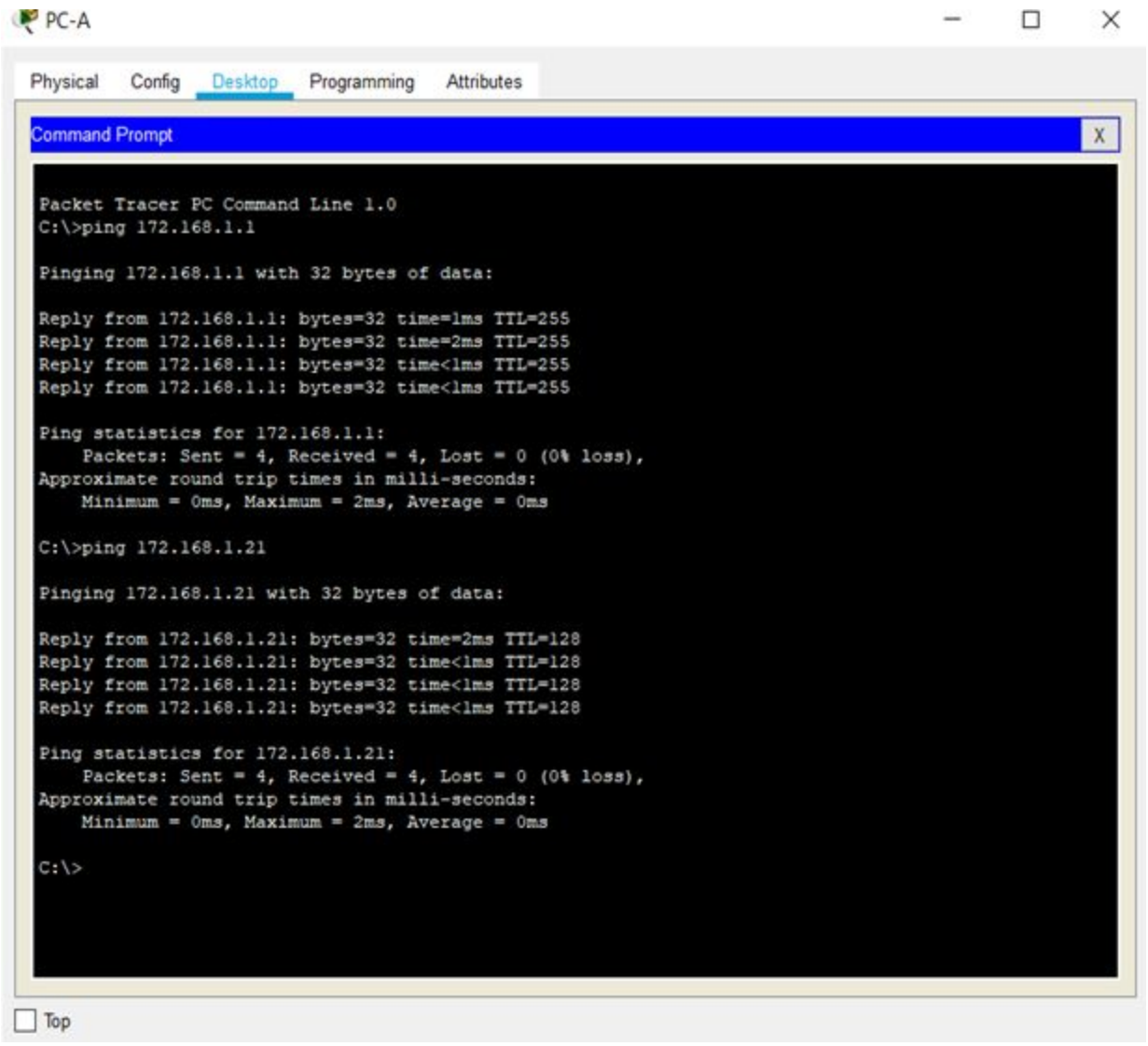
ISP

Physical Config CLI Attributes

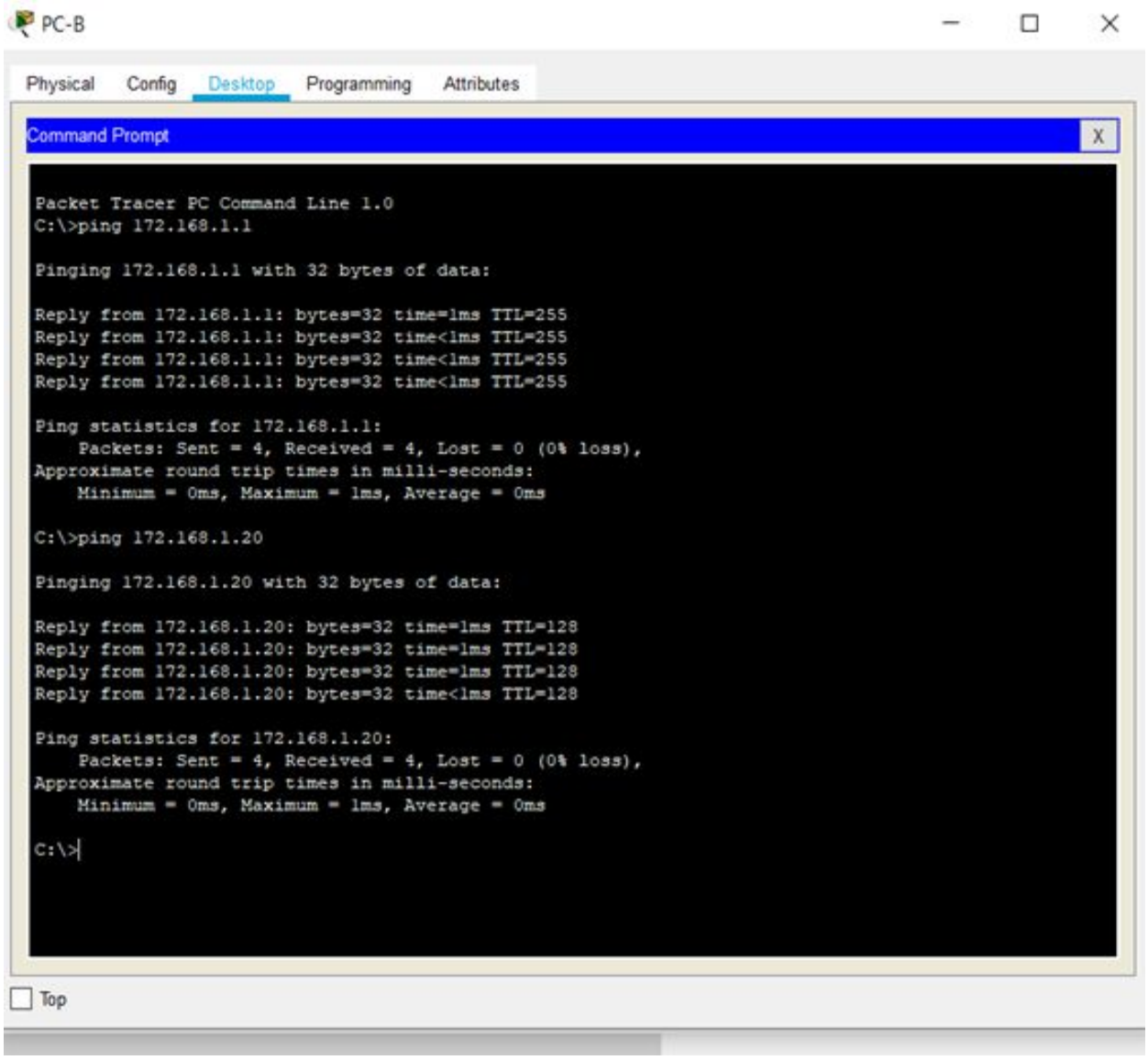
```
!
no ip domain-lookup
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface Loopback0
 ip address 172.31.7.1 255.255.255.255
!
interface GigabitEthernet0/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface GigabitEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial0/0/0
 ip address 210.185.201.17 255.255.255.252
!
interface Serial0/0/1
 no ip address
 clock rate 2000000
 shutdown
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
ip route 210.185.200.224 255.255.255.224 210.185.201.18
!
ip flow-export version 9
!
!
!
banner motd ^C
Unauthorized access is strictly prohibited. ^C
!
!
!
!
 --More--
```

Verify connectivity:

Ping from PC-A to gateway G0/1 and PC-B:



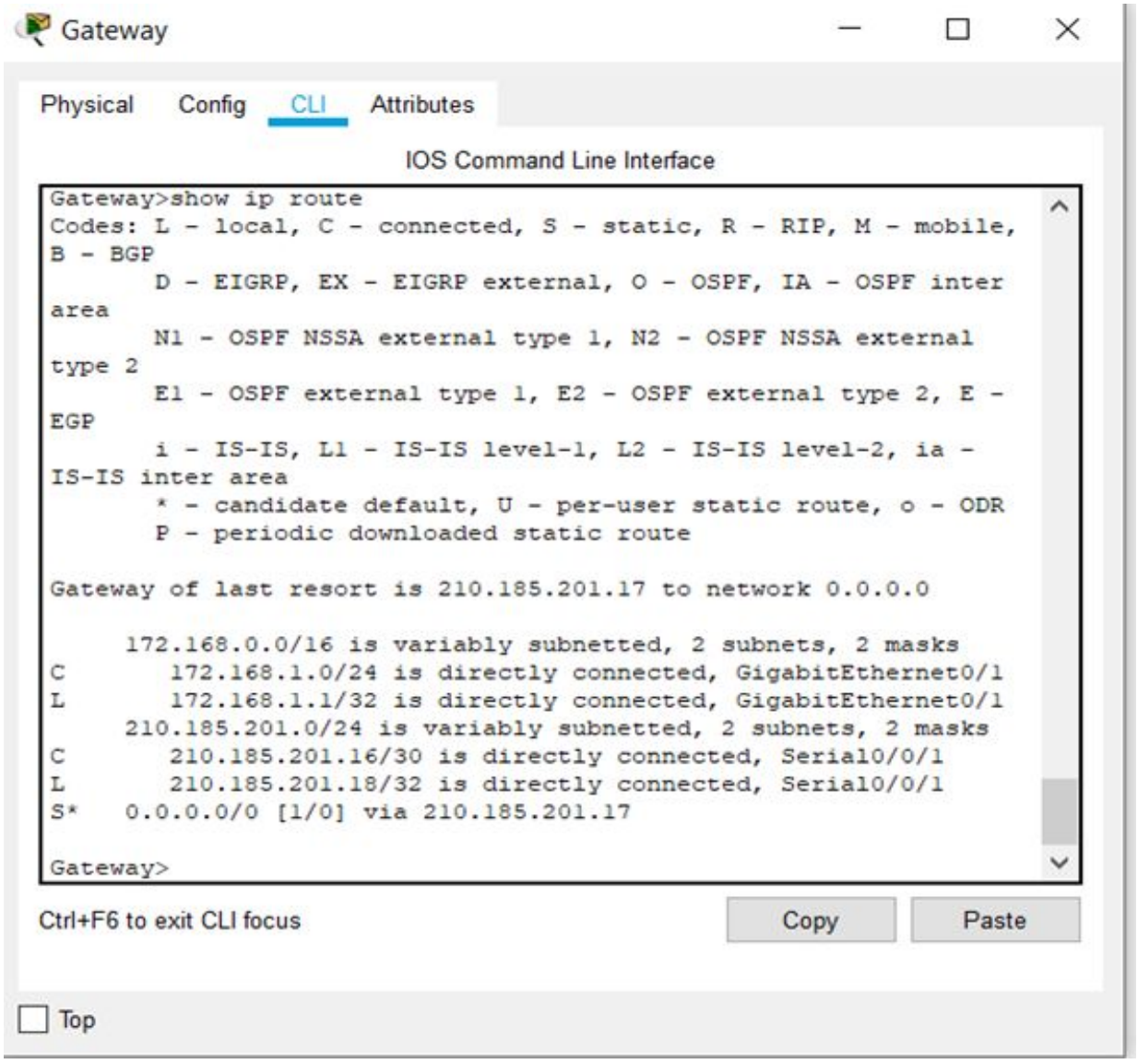
Ping from PC-B to gateway G0/1 and PC-A:



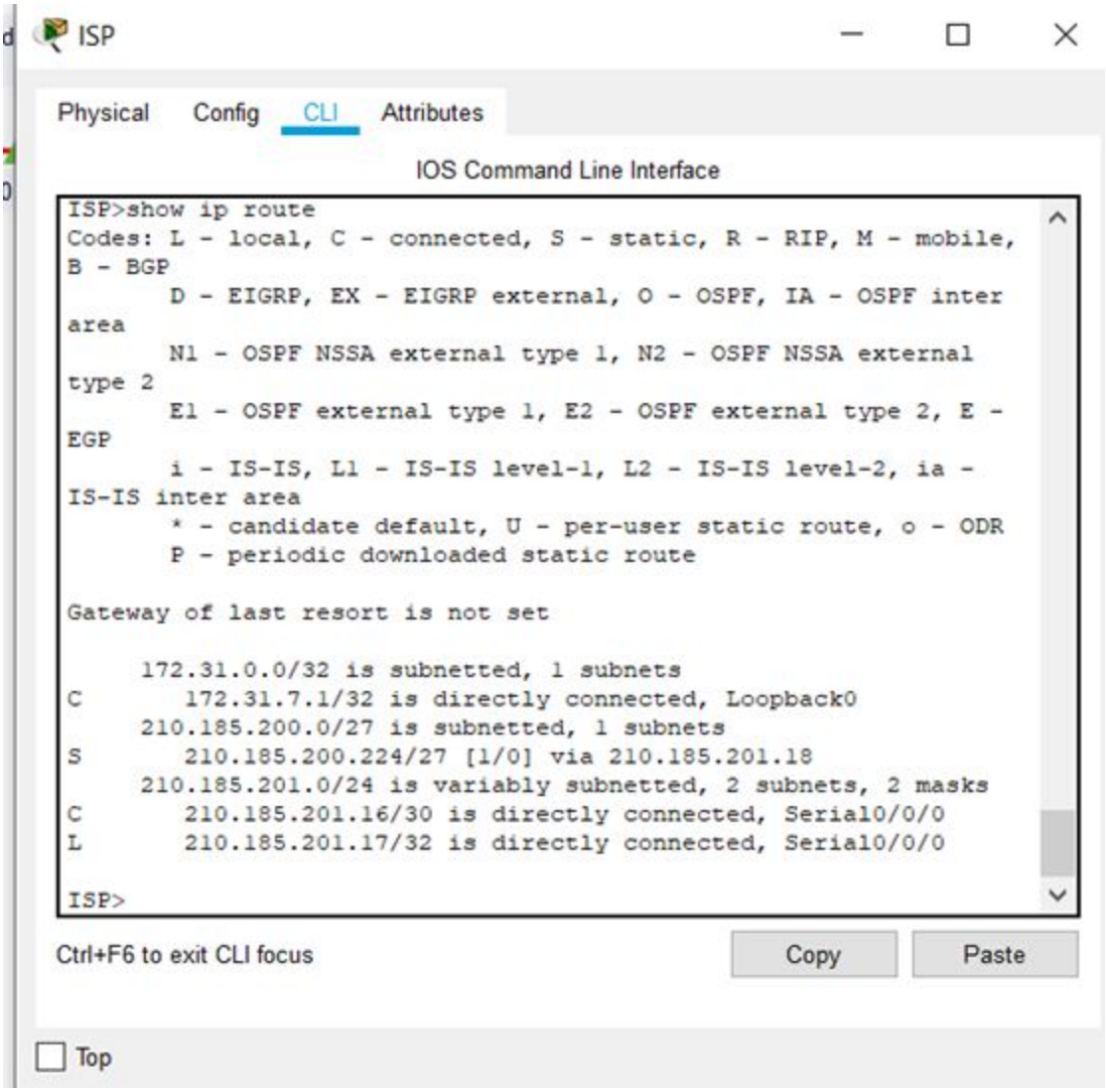
All the pings are successfully completed.

Routing tables on both routers to verify static route in routing table:

Gateway Routing table:

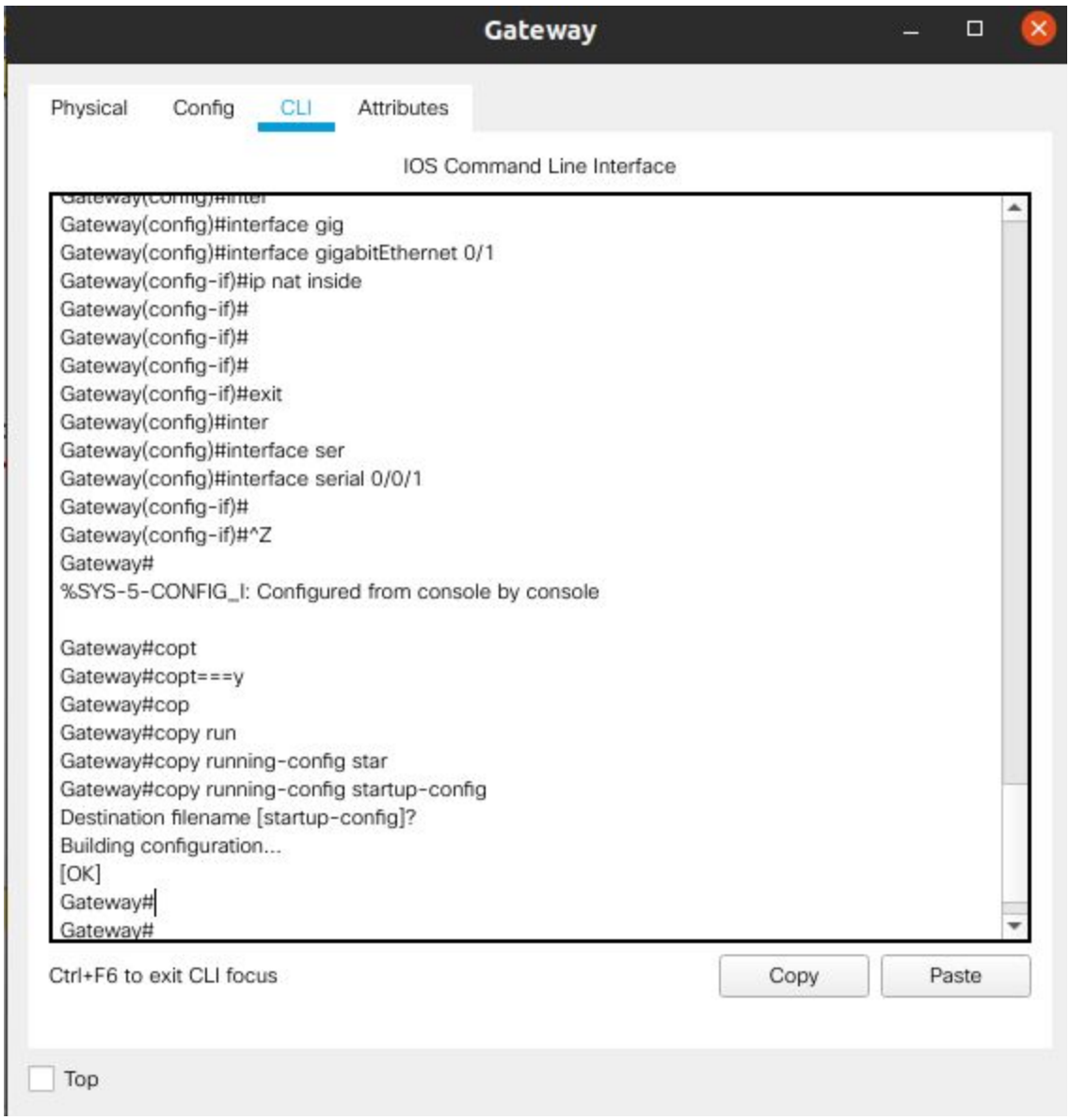


ISP routing table:



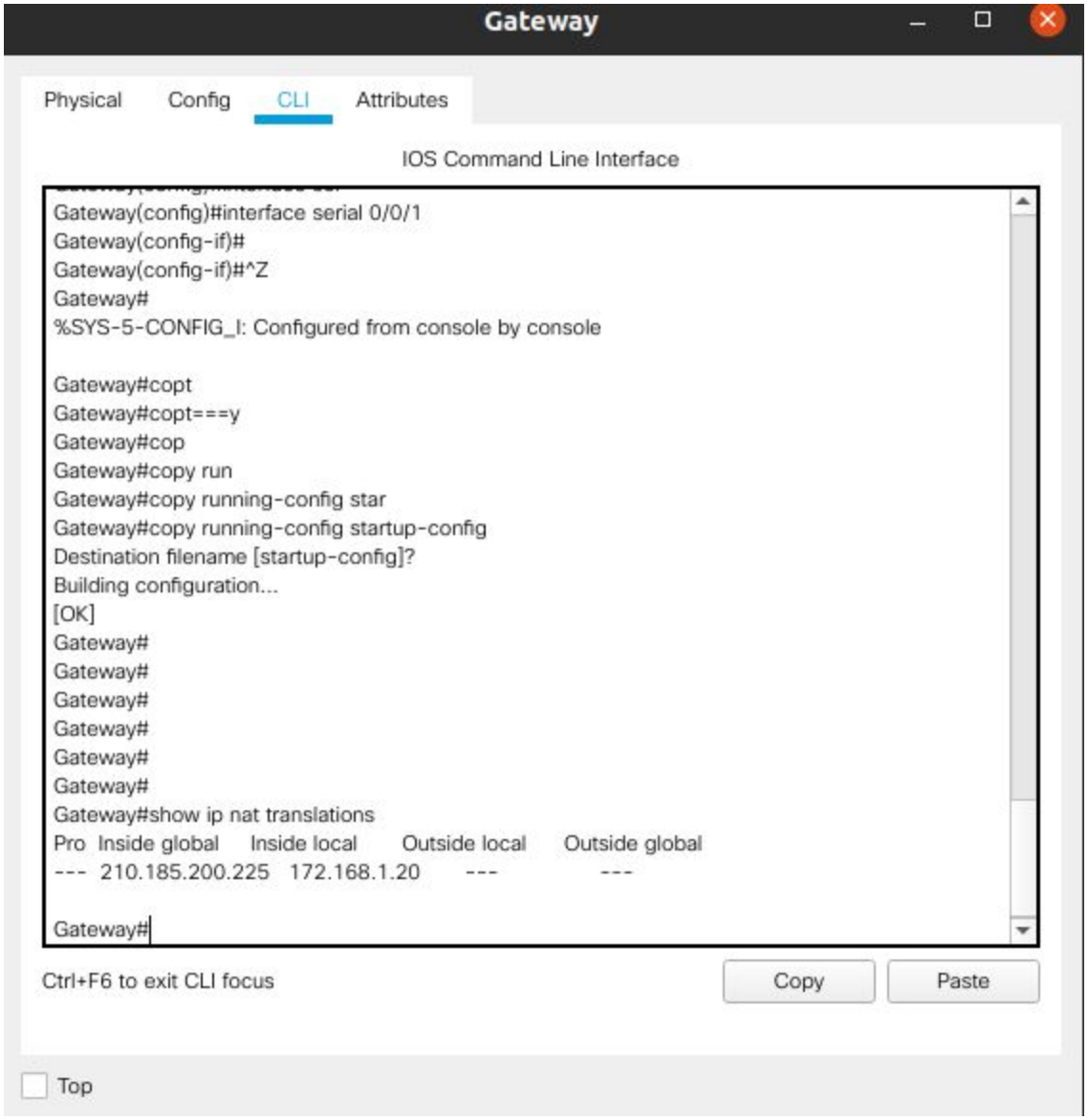
Task2:

Step 1: Configure a static mapping and Specify the interfaces.

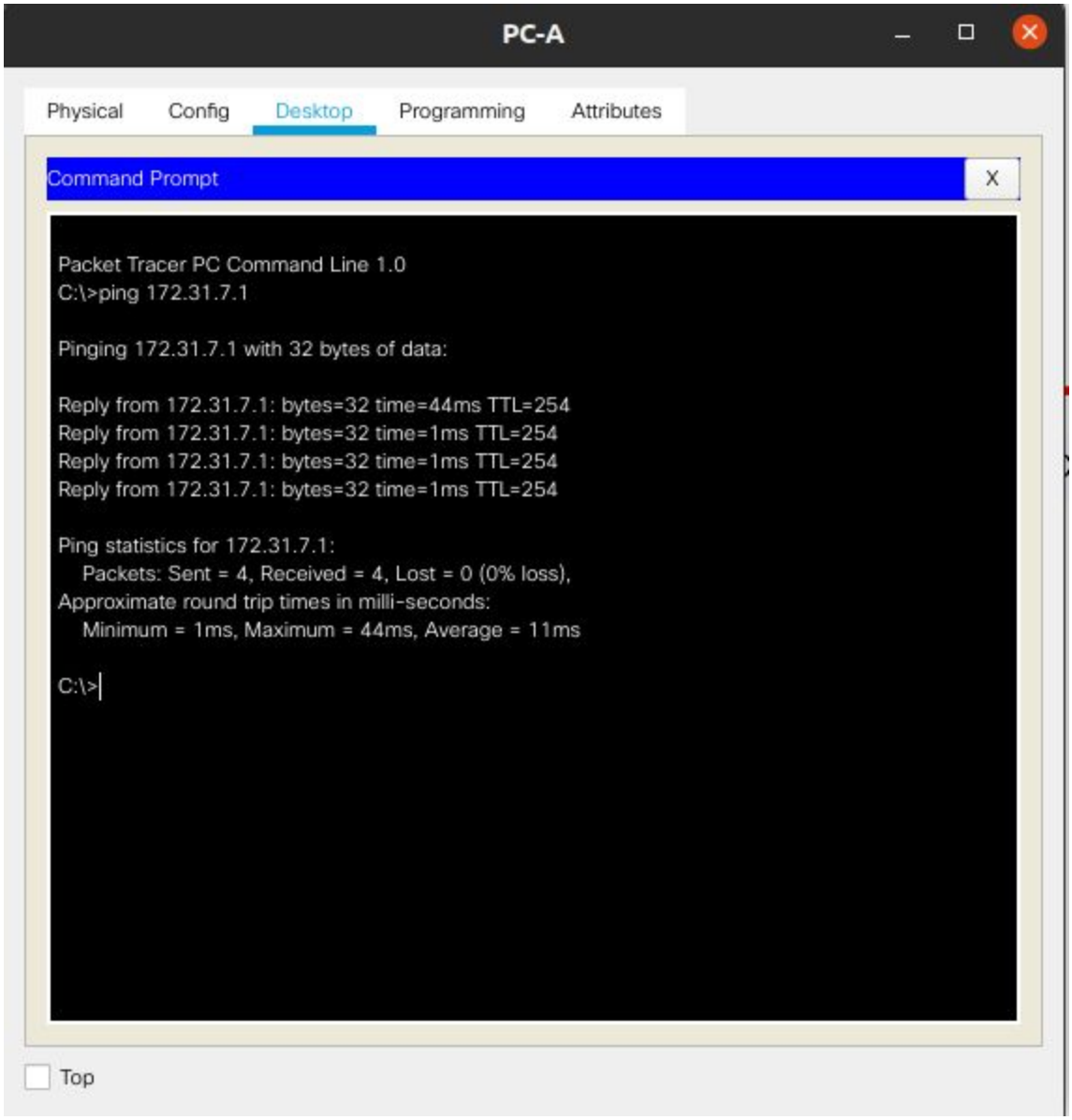


Step 3: Test the configuration.

What is the translation of the Inside local host address?
172.168.1.20 ---> 210.185.200.225



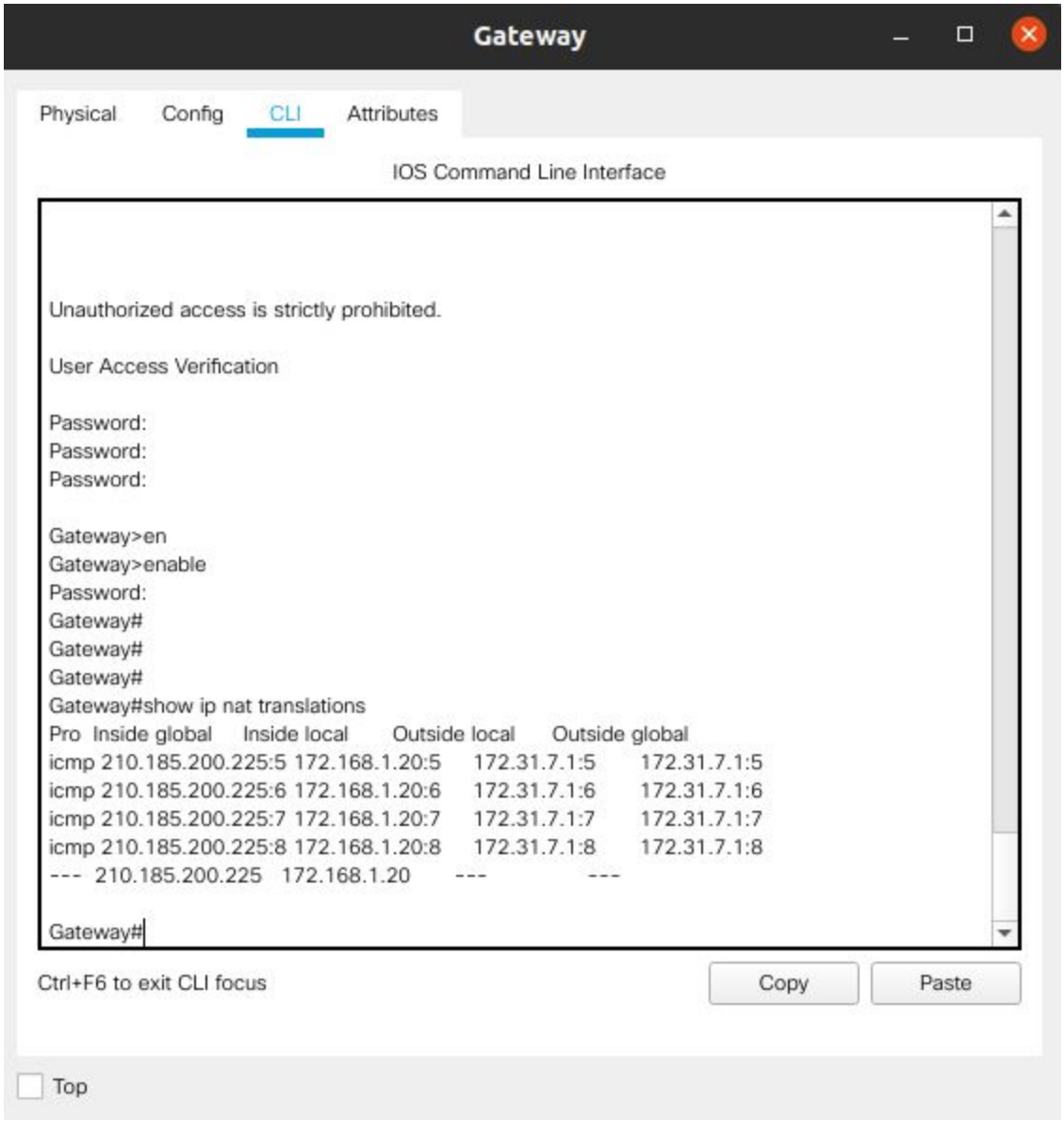
From PC-A, ping the Lo0 interface (172.31.7.1) on ISP.



A NAT entry was added to the table with ICMP listed as the protocol when PC-A sent an ICMP request (ping) to 192.31.7.1 on ISP.

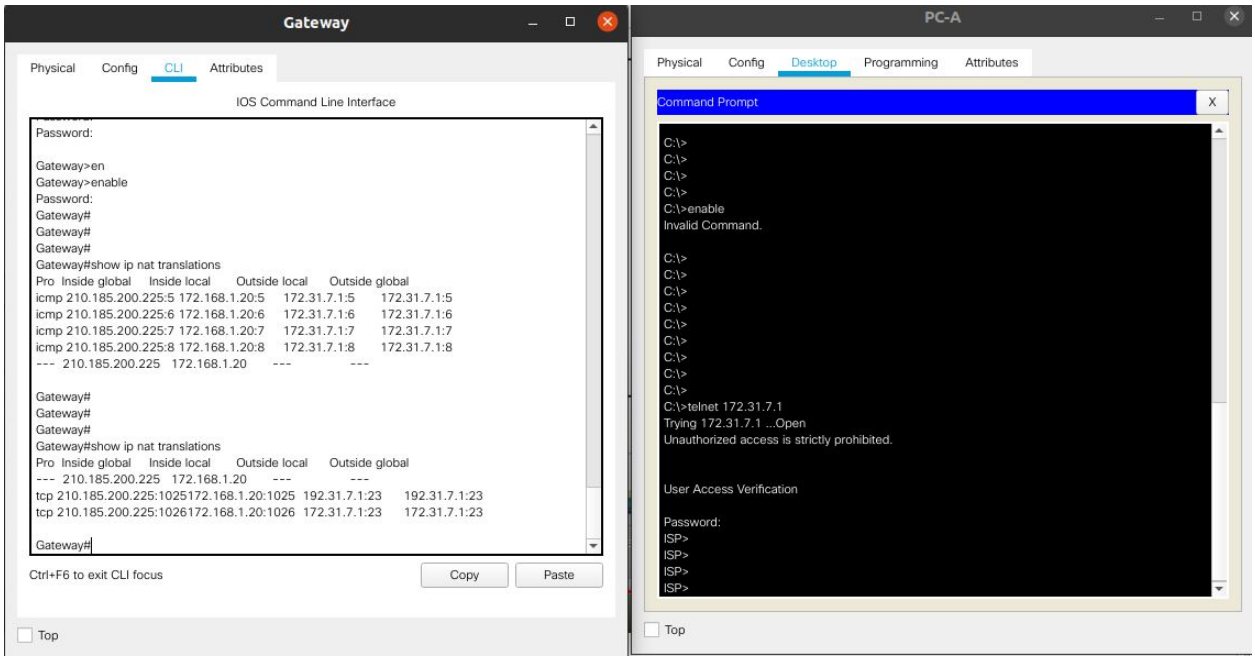
What port number was used in this ICMP exchange?

5,6,7,8

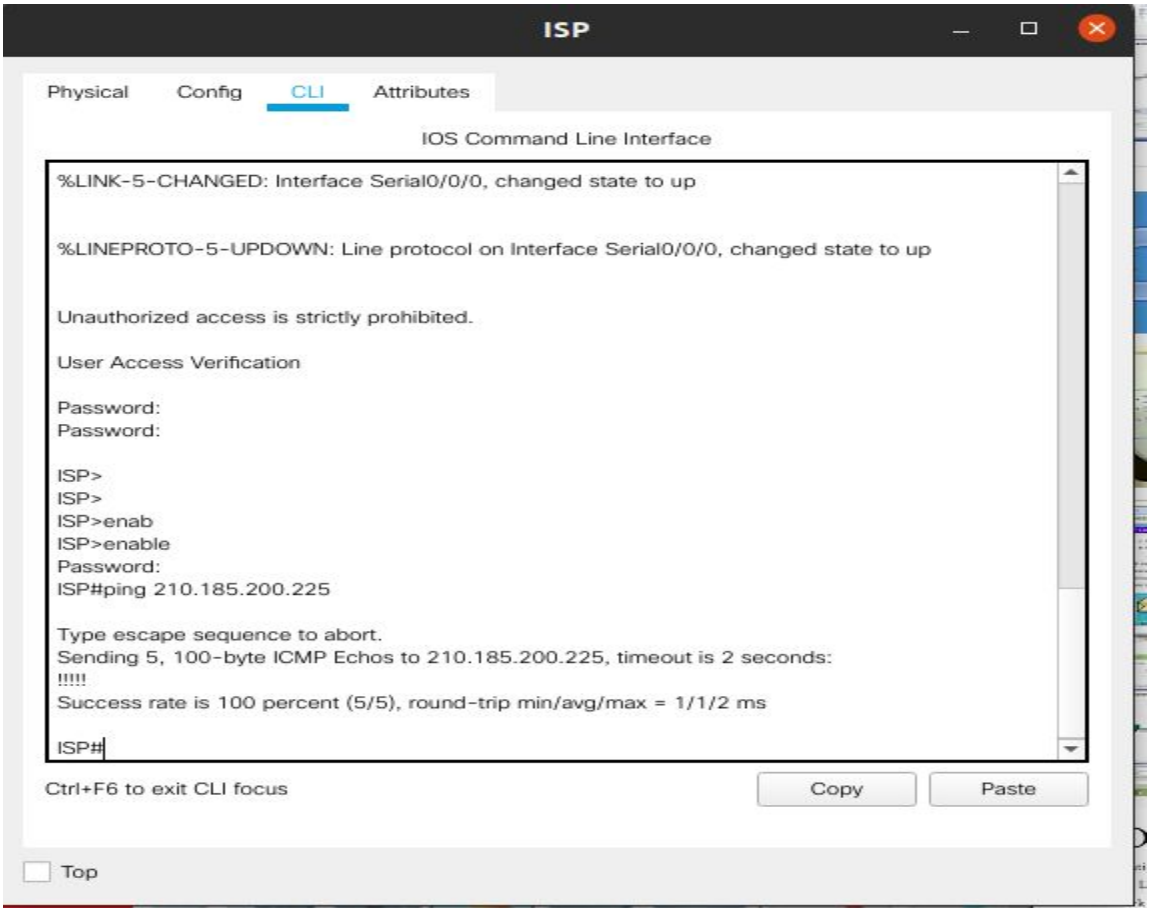


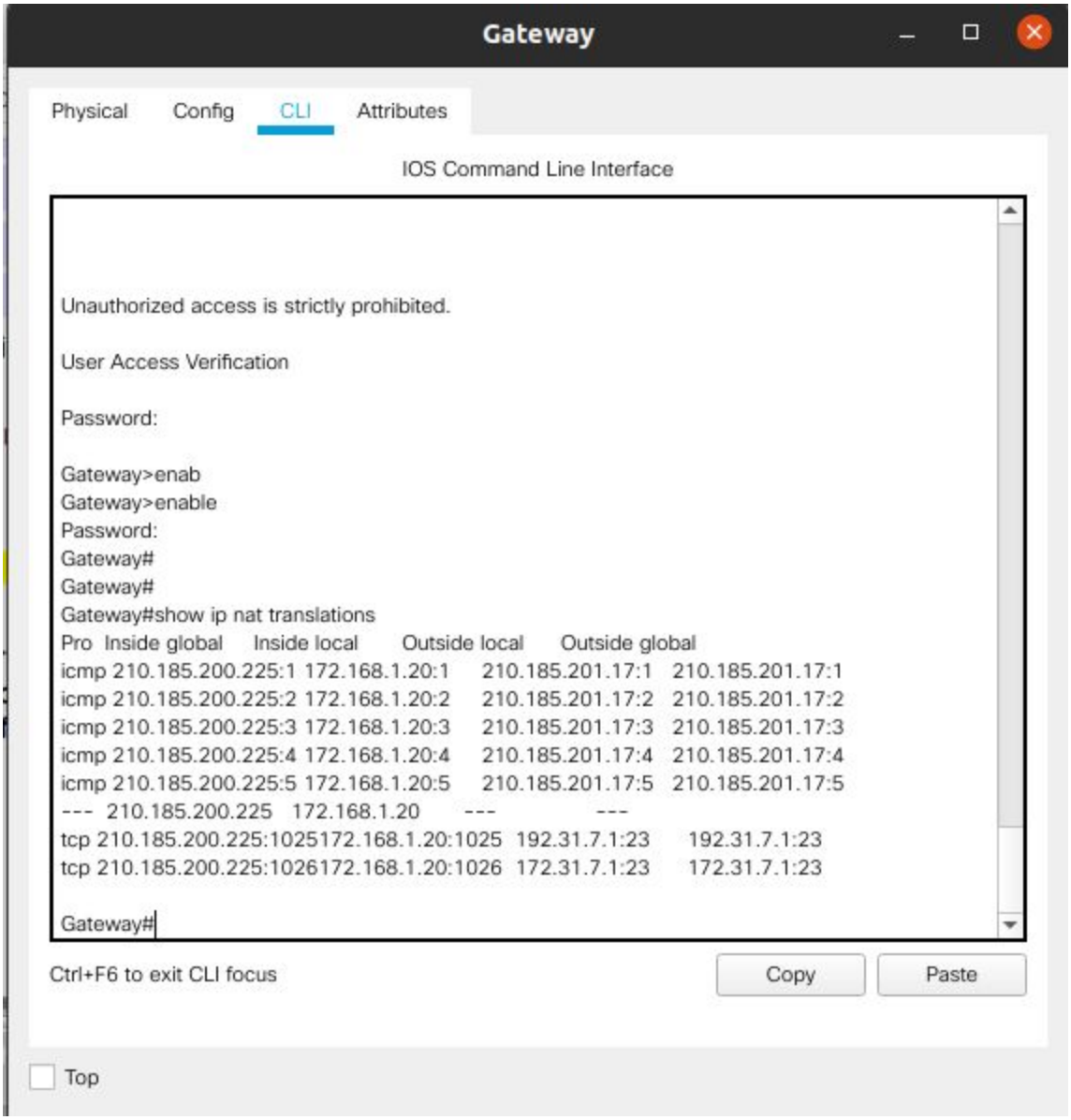
C] From PC-A, telnet to the ISP Lo0 interface and display the NAT table. What was the protocol used in this translation?
tcp

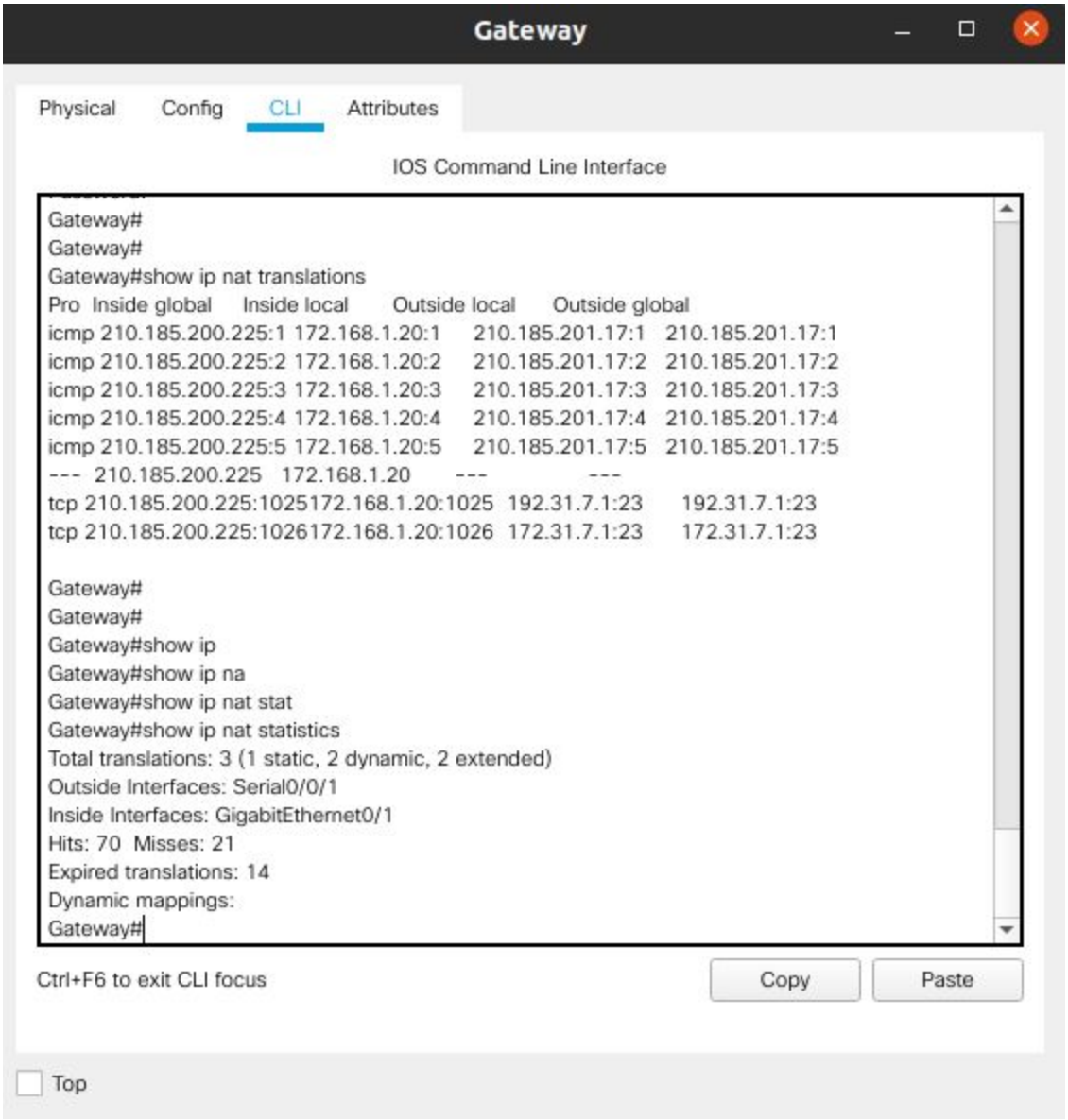
What are the port numbers used?
Inside global / local: 1026
Outside global / local:23

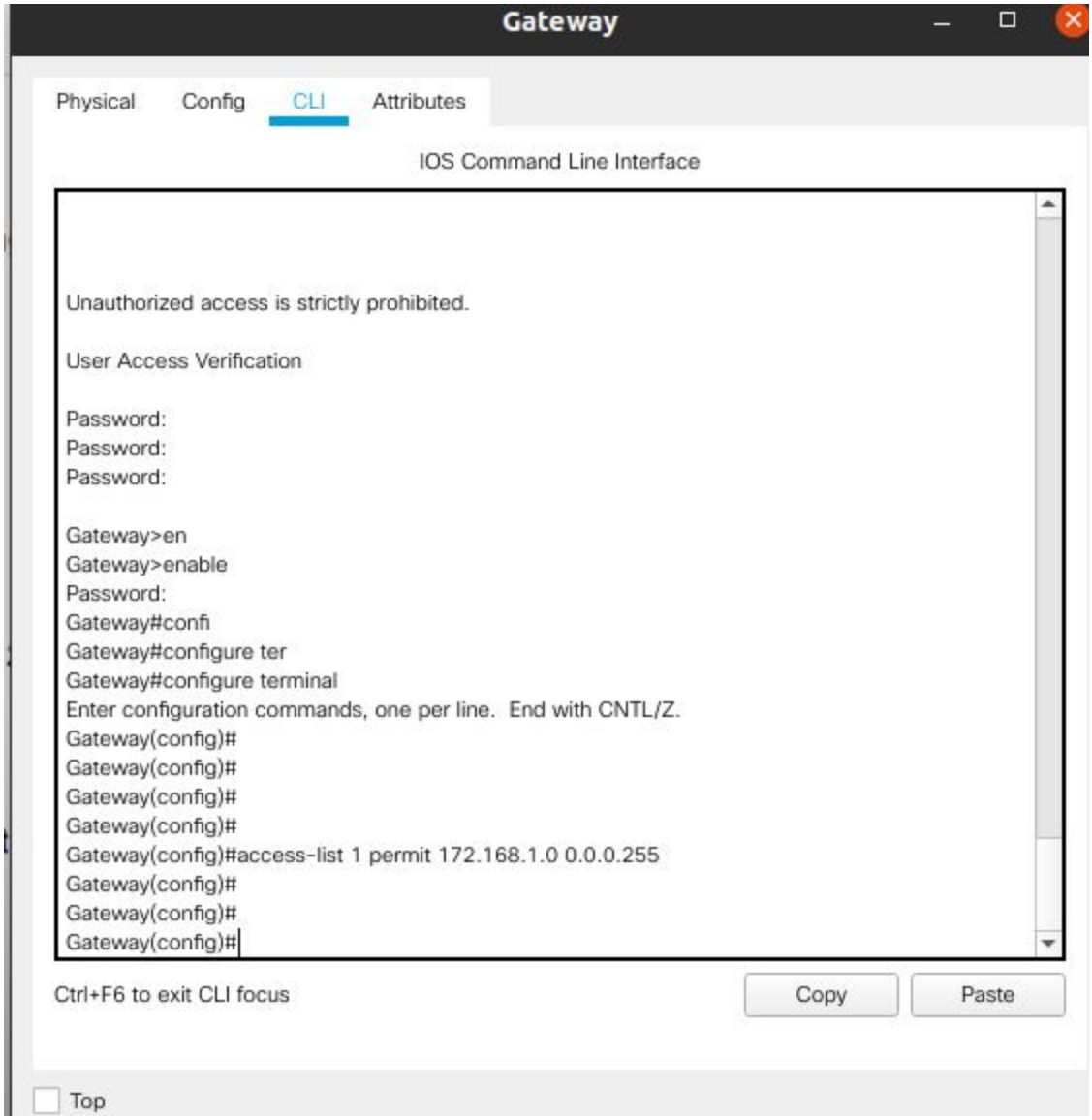


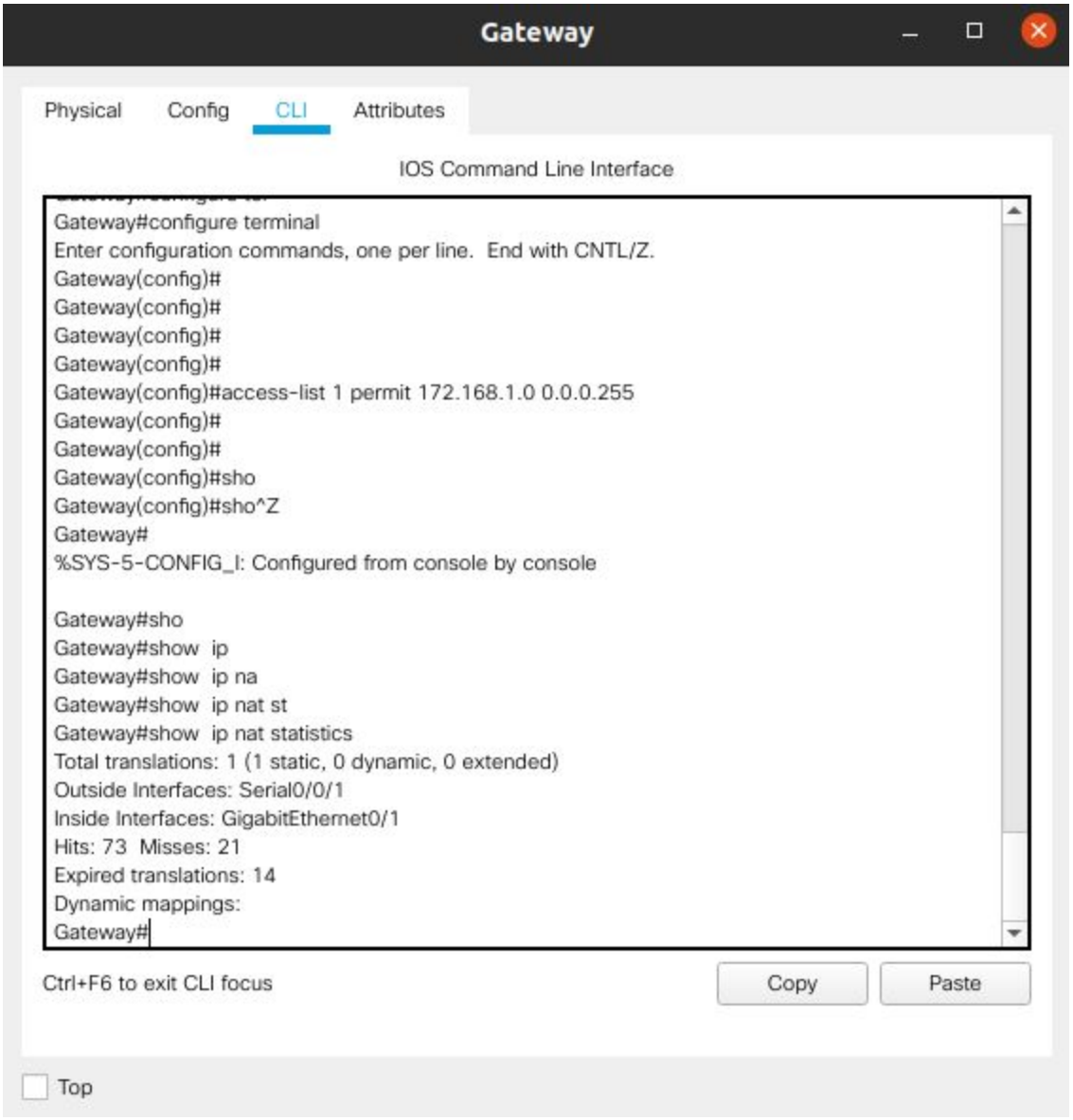
Because static NAT was configured for PC-A, verify that pinging from ISP to PC-A


ISP
Physical
Config
CLI
Attributes
IOS Command Line Interface
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
Unauthorized access is strictly prohibited.
User Access Verification
Password:
Password:
ISP>
ISP>
ISP>enab
ISP>enable
Password:
ISP#ping 210.185.200.225
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 210.185.200.225, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/2 ms
ISP#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


Gateway
Physical
Config
CLI
Attributes
IOS Command Line Interface
Unauthorized access is strictly prohibited.
User Access Verification
Password:
Gateway>enab
Gateway>enable
Password:
Gateway#
Gateway#
Gateway#show ip nat translations
Pro Inside global Inside local Outside local Outside global
icmp 210.185.200.225:1 172.168.1.20:1 210.185.201.17:1 210.185.201.17:1
icmp 210.185.200.225:2 172.168.1.20:2 210.185.201.17:2 210.185.201.17:2
icmp 210.185.200.225:3 172.168.1.20:3 210.185.201.17:3 210.185.201.17:3
icmp 210.185.200.225:4 172.168.1.20:4 210.185.201.17:4 210.185.201.17:4
icmp 210.185.200.225:5 172.168.1.20:5 210.185.201.17:5 210.185.201.17:5
--- 210.185.200.225 172.168.1.20 --- ---
tcp 210.185.200.225:1025172.168.1.20:1025 192.31.7.1:23 192.31.7.1:23
tcp 210.185.200.225:1026172.168.1.20:1026 172.31.7.1:23 172.31.7.1:23
Gateway#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

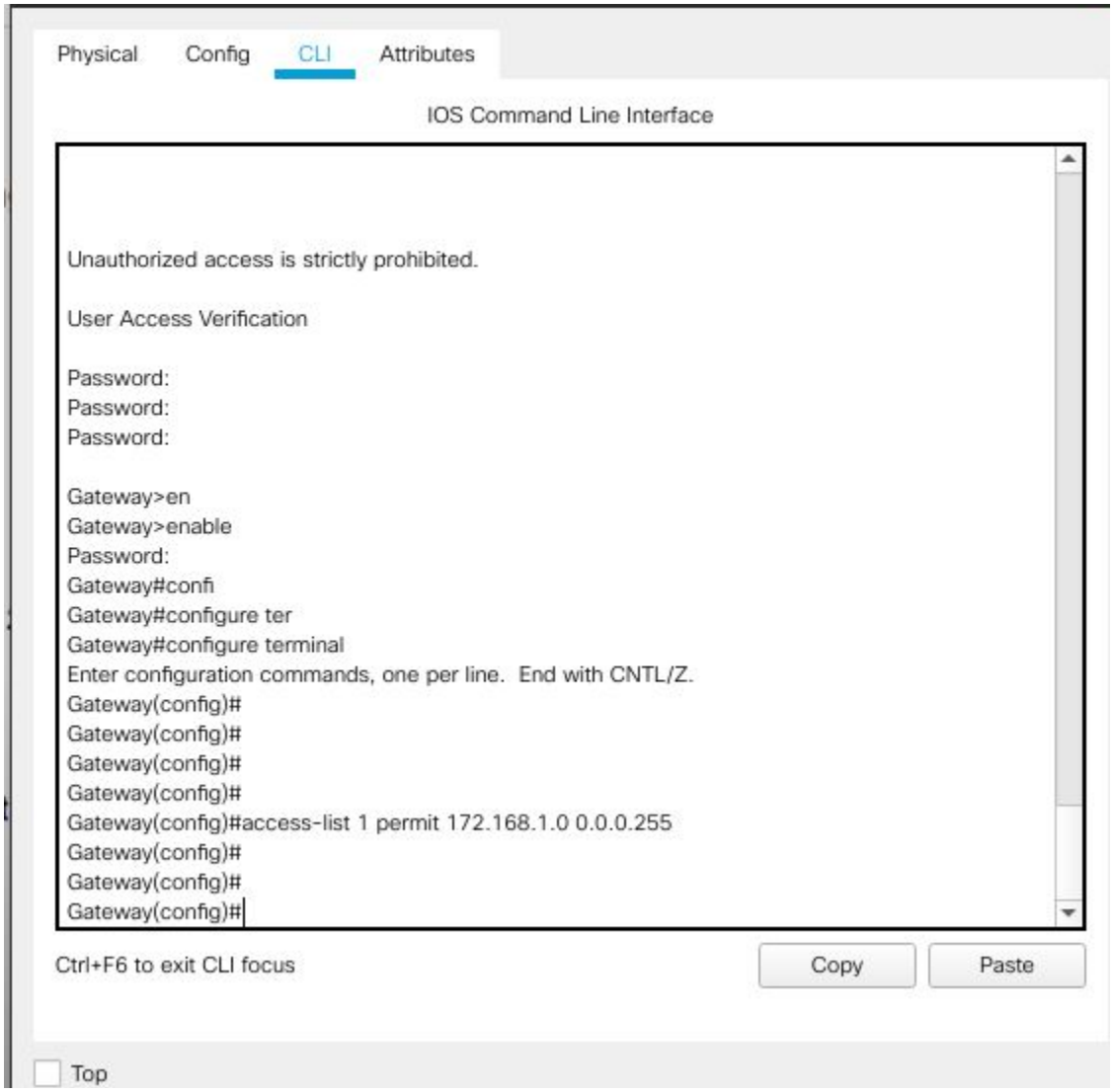

Gateway
Physical
Config
CLI
Attributes
IOS Command Line Interface
Gateway#
Gateway#
Gateway#show ip nat translations
Pro Inside global Inside local Outside local Outside global
icmp 210.185.200.225:1 172.168.1.20:1 210.185.201.17:1 210.185.201.17:1
icmp 210.185.200.225:2 172.168.1.20:2 210.185.201.17:2 210.185.201.17:2
icmp 210.185.200.225:3 172.168.1.20:3 210.185.201.17:3 210.185.201.17:3
icmp 210.185.200.225:4 172.168.1.20:4 210.185.201.17:4 210.185.201.17:4
icmp 210.185.200.225:5 172.168.1.20:5 210.185.201.17:5 210.185.201.17:5
--- 210.185.200.225 172.168.1.20 --- ---
tcp 210.185.200.225:1025172.168.1.20:1025 192.31.7.1:23 192.31.7.1:23
tcp 210.185.200.225:1026172.168.1.20:1026 172.31.7.1:23 172.31.7.1:23
Gateway#
Gateway#
Gateway#show ip
Gateway#show ip na
Gateway#show ip nat stat
Gateway#show ip nat statistics
Total translations: 3 (1 static, 2 dynamic, 2 extended)
Outside Interfaces: Serial0/0/1
Inside Interfaces: GigabitEthernet0/1
Hits: 70 Misses: 21
Expired translations: 14
Dynamic mappings:
Gateway#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


Gateway
Physical
Config
CLI
Attributes
IOS Command Line Interface
Unauthorized access is strictly prohibited.
User Access Verification
Password:
Password:
Password:
Gateway>en
Gateway>enable
Password:
Gateway#confi
Gateway#configure ter
Gateway#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Gateway(config)#
Gateway(config)#
Gateway(config)#
Gateway(config)#
Gateway(config)#access-list 1 permit 172.168.1.0 0.0.0.255
Gateway(config)#
Gateway(config)#
Gateway(config)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

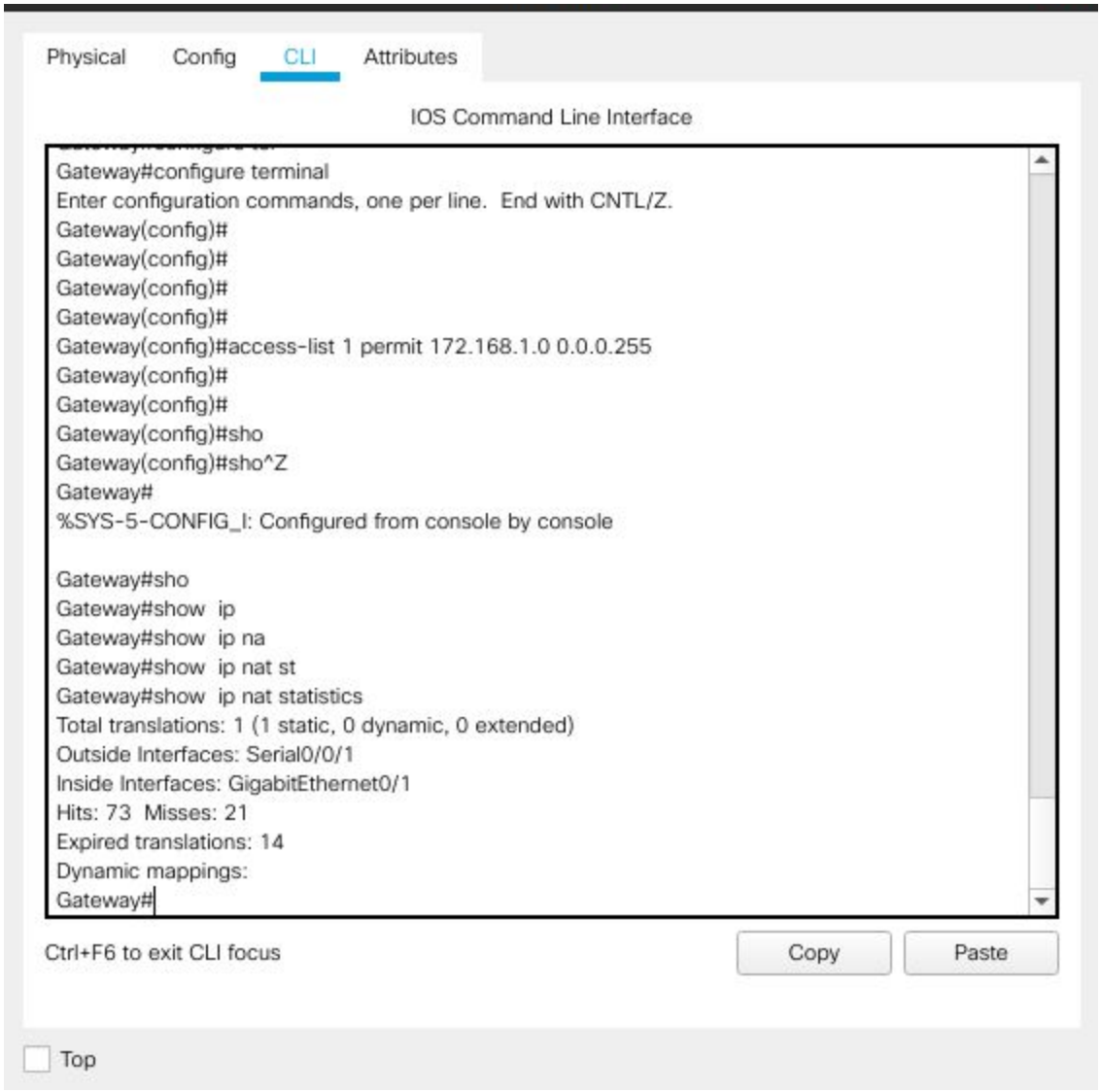

Gateway
Physical
Config
CLI
Attributes
IOS Command Line Interface
Gateway#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Gateway(config)#
Gateway(config)#
Gateway(config)#
Gateway(config)#
Gateway(config)#access-list 1 permit 172.168.1.0 0.0.0.255
Gateway(config)#
Gateway(config)#
Gateway(config)#sho
Gateway(config)#sho^Z
Gateway#
%SYS-5-CONFIG_I: Configured from console by console
Gateway#sho
Gateway#show ip
Gateway#show ip na
Gateway#show ip nat st
Gateway#show ip nat statistics
Total translations: 1 (1 static, 0 dynamic, 0 extended)
Outside Interfaces: Serial0/0/1
Inside Interfaces: GigabitEthernet0/1
Hits: 73 Misses: 21
Expired translations: 14
Dynamic mappings:
Gateway#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

Task 3:

Step 1: Clear NATs. and Step 2: Define an access control list (ACL) that matches the LAN private IP address range.

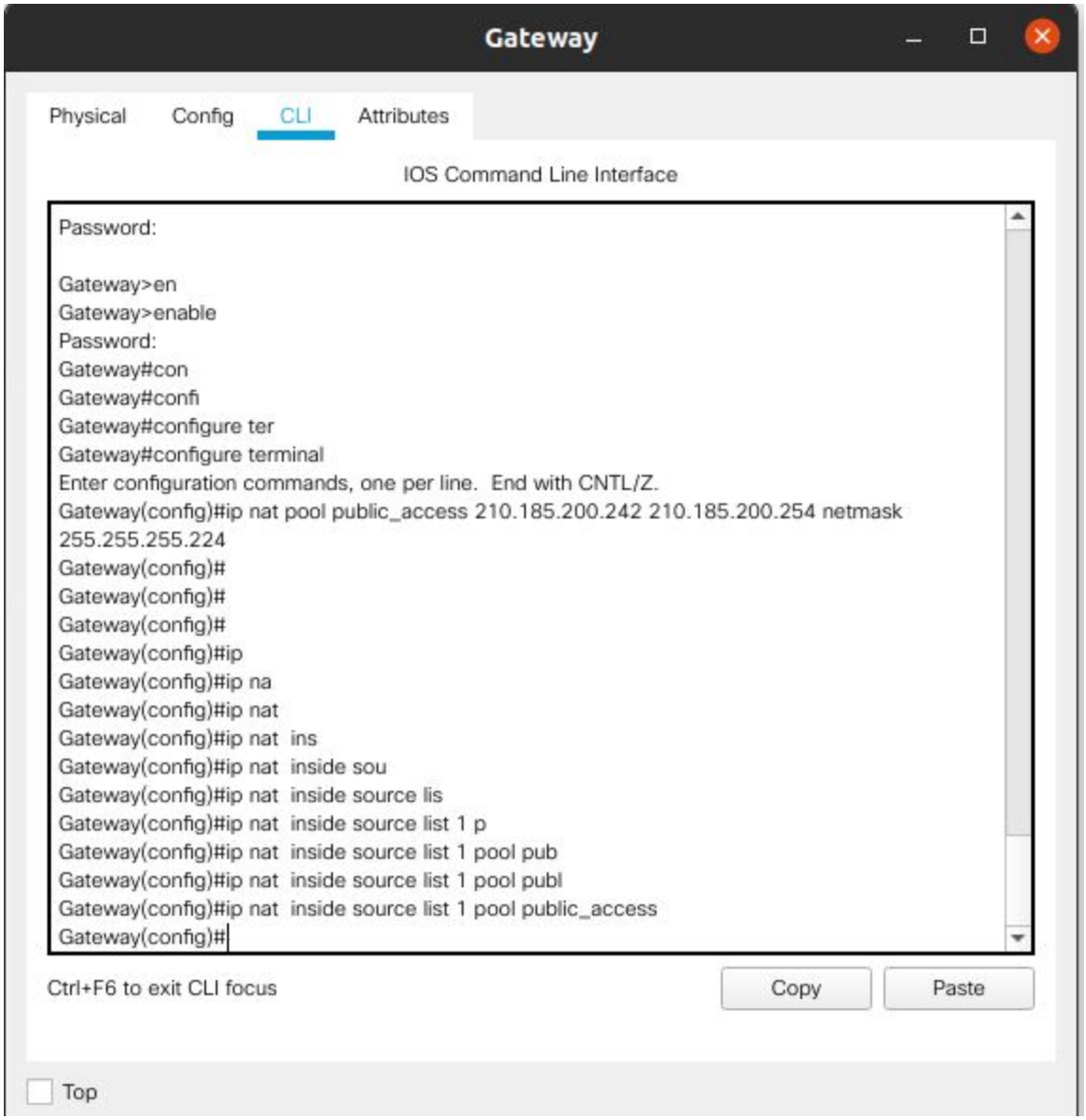


Step 3: Verify that the NAT interface configurations are still valid.

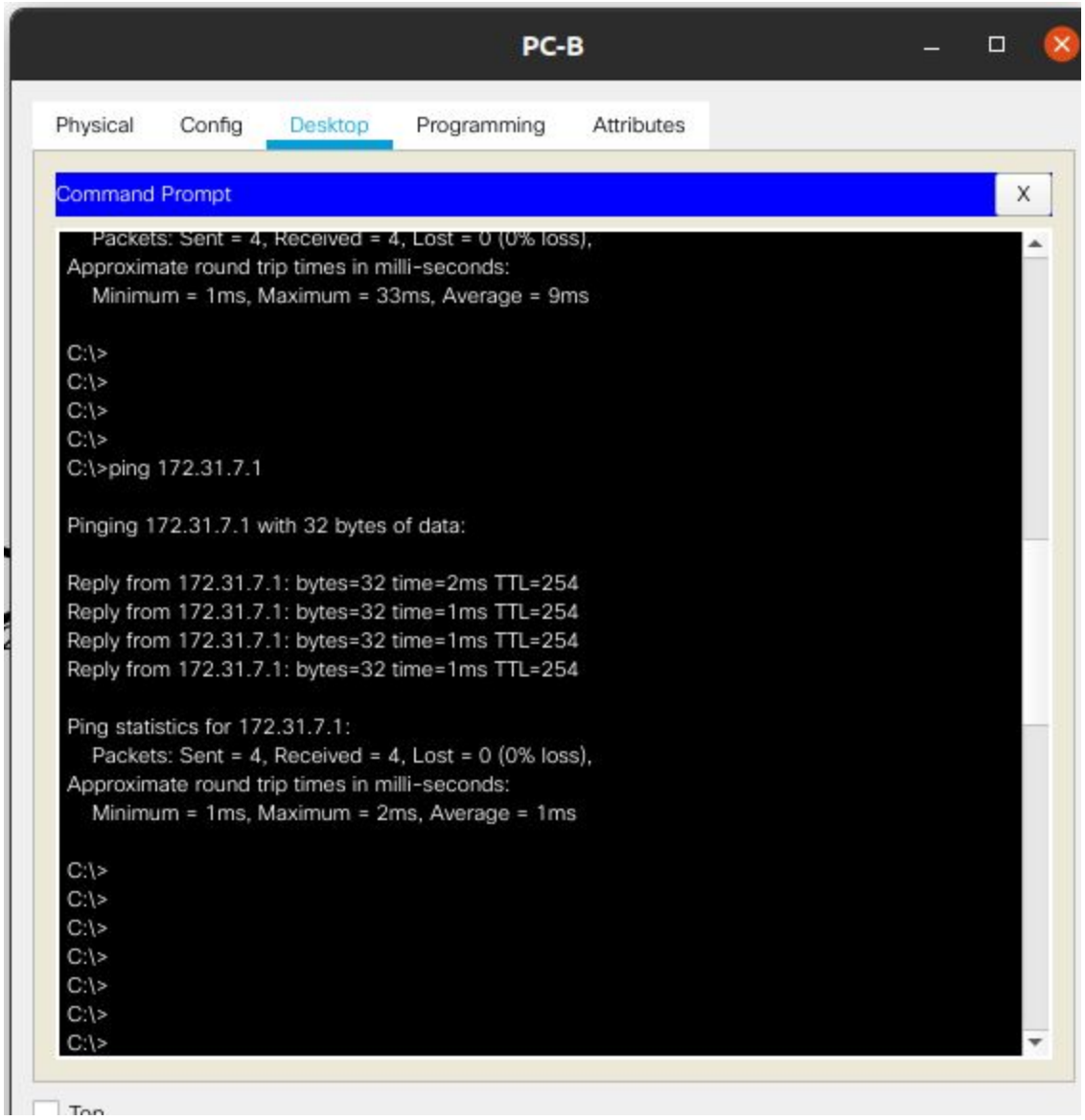


Step 4 Define the pool of usable public IP addresses.

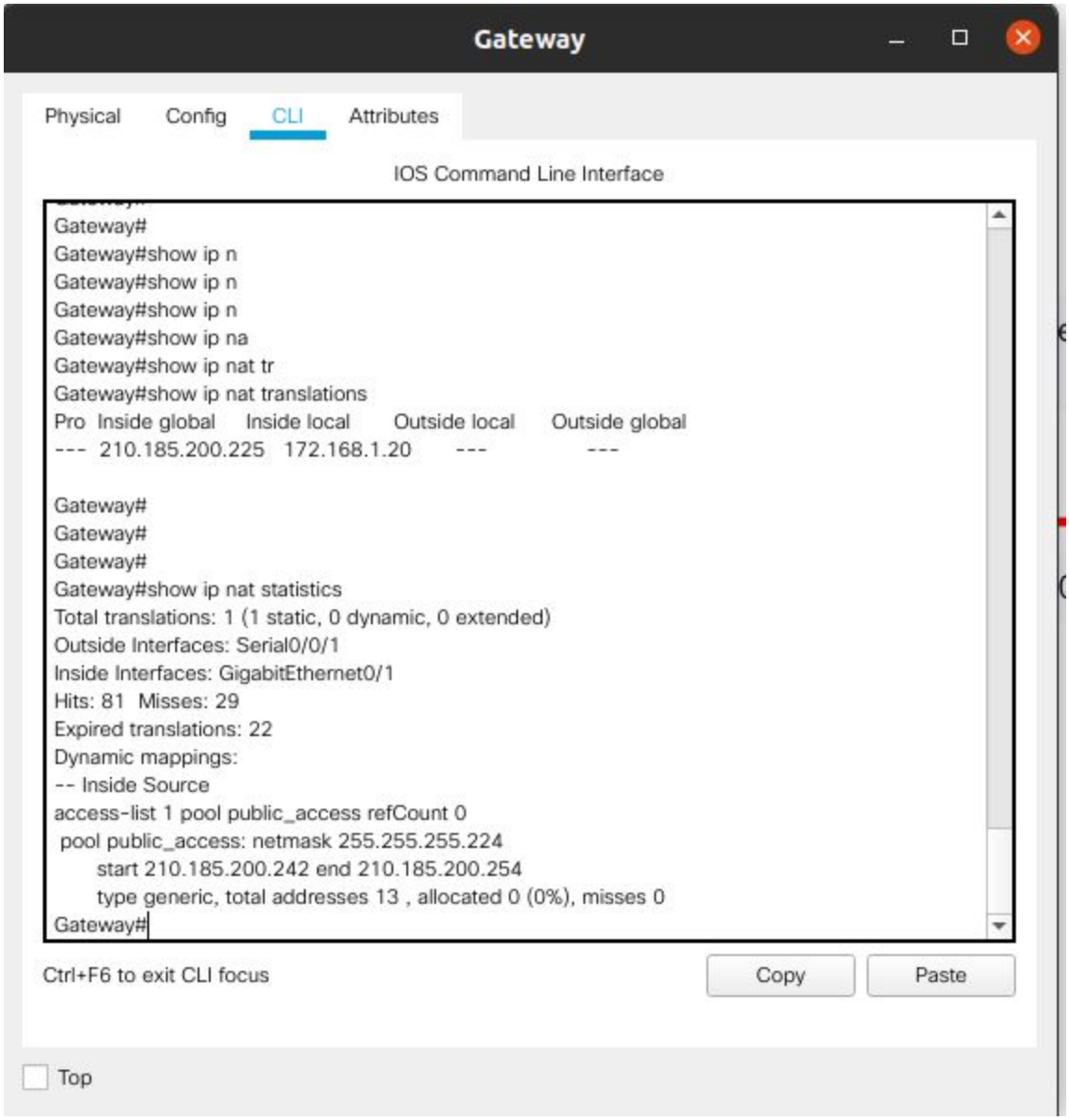
Step 5
Define the NAT from the inside source list to the outside pool.



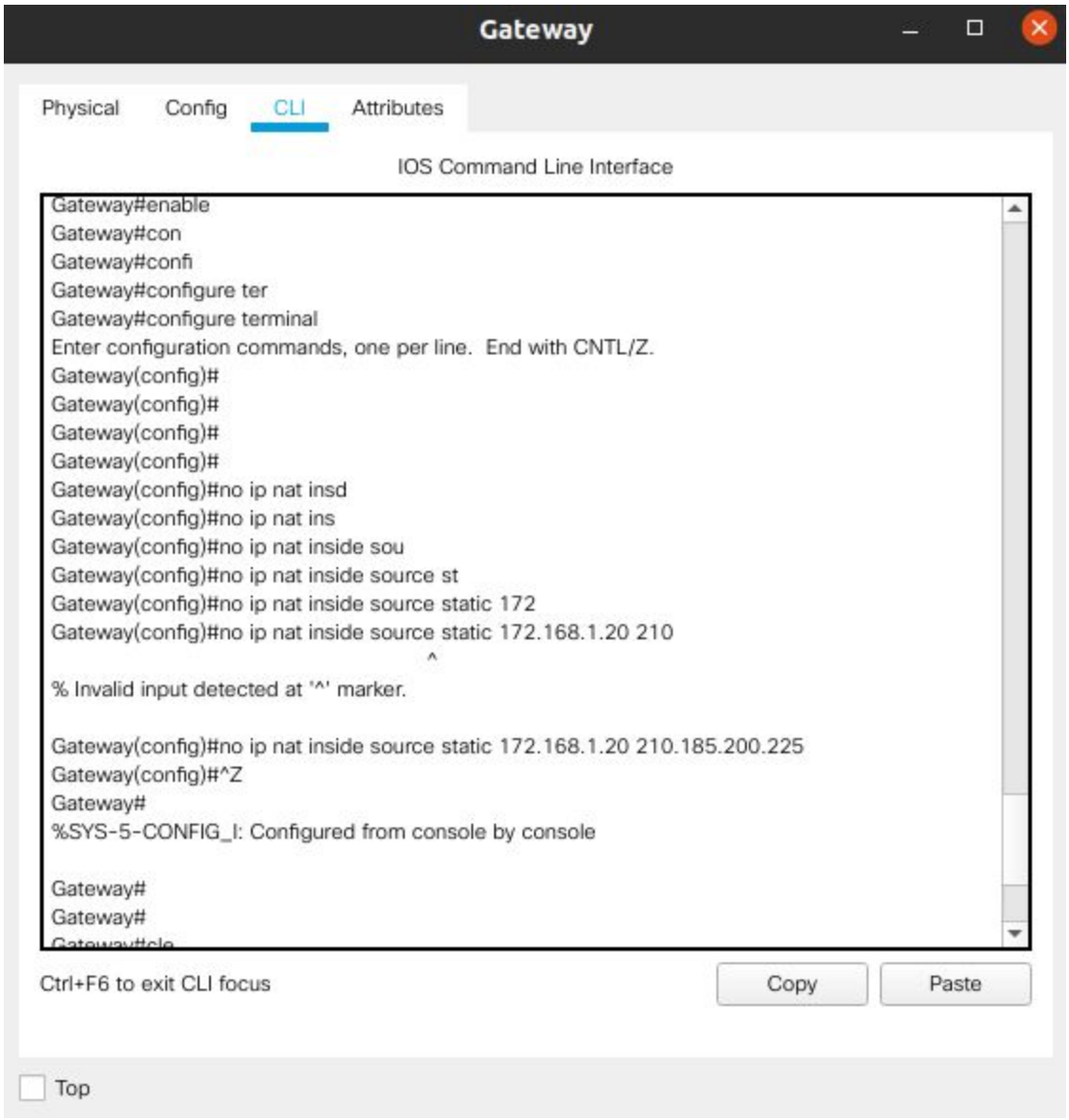
Step 6 : Test configuration by pinging from PC-b to ISP loopback

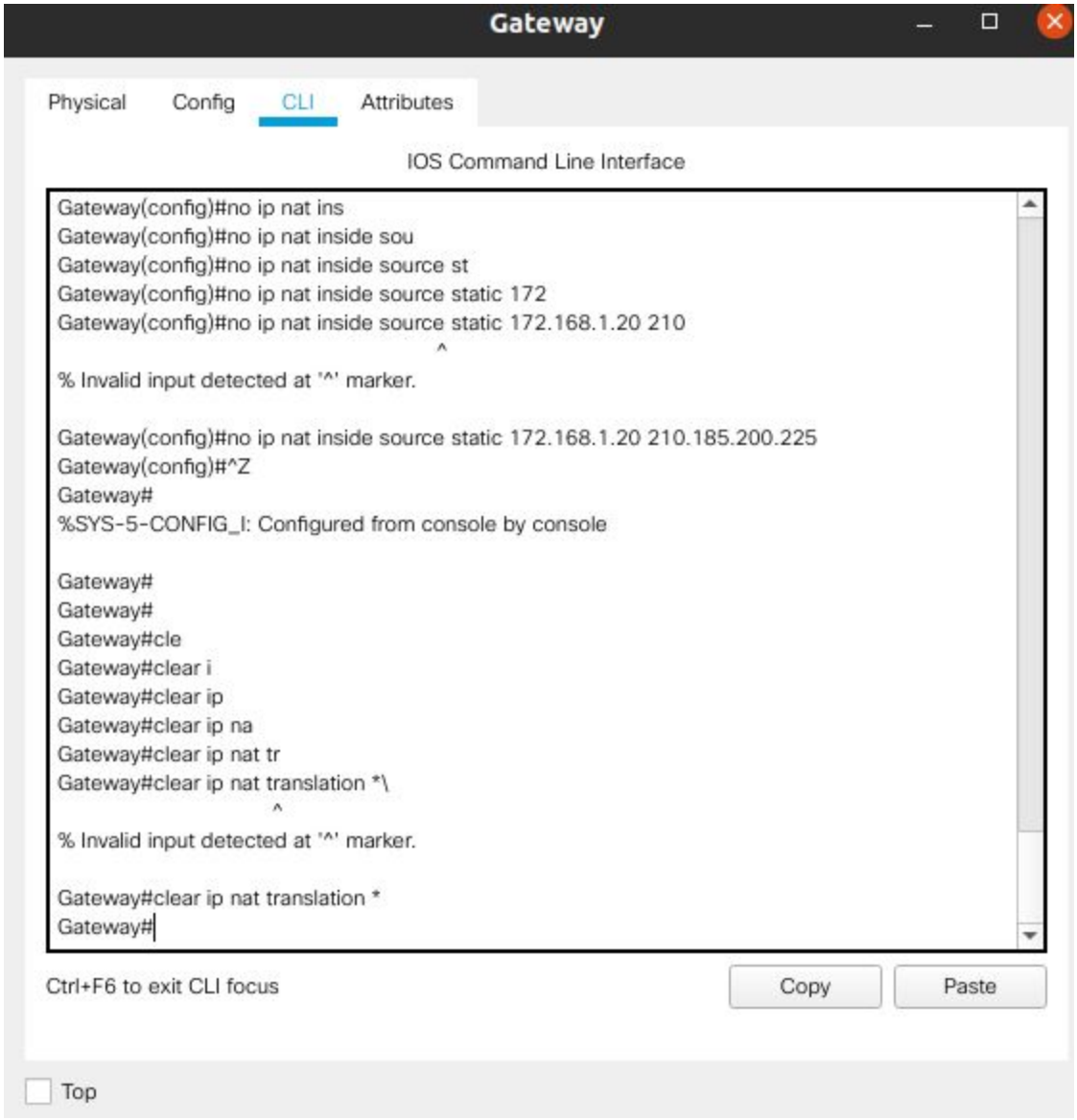



Gateway
Physical
Config
CLI
Attributes
IOS Command Line Interface
Gateway>en
Gateway>enable
Password:
Gateway#
Gateway#
Gateway#
Gateway#sho
Gateway#show ip
Gateway#show ip na
Gateway#show ip nat tra
Gateway#show ip nat translations
Pro Inside global Inside local Outside local Outside global
--- 210.185.200.225 172.168.1.20 --- ---
Gateway#
Gateway#
Gateway#show ip nat tra
Gateway#show ip nat translations
Pro Inside global Inside local Outside local Outside global
icmp 210.185.200.242:10172.168.1.21:10 172.31.7.1:10 172.31.7.1:10
icmp 210.185.200.242:11172.168.1.21:11 172.31.7.1:11 172.31.7.1:11
icmp 210.185.200.242:12172.168.1.21:12 172.31.7.1:12 172.31.7.1:12
icmp 210.185.200.242:13172.168.1.21:13 172.31.7.1:13 172.31.7.1:13
--- 210.185.200.225 172.168.1.20 --- ---
Gateway#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

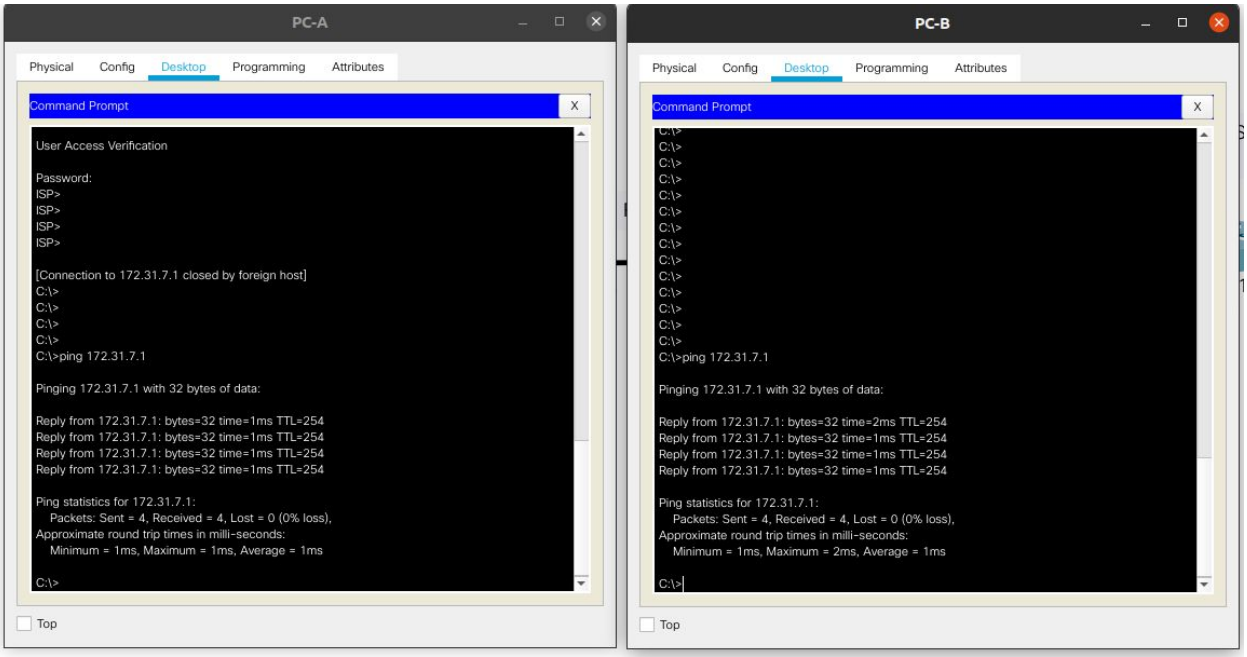

Gateway
Physical
Config
CLI
Attributes
IOS Command Line Interface
Gateway#
Gateway#show ip n
Gateway#show ip n
Gateway#show ip n
Gateway#show ip na
Gateway#show ip nat tr
Gateway#show ip nat translations
Pro Inside global Inside local Outside local Outside global
--- 210.185.200.225 172.168.1.20 --- ---
Gateway#
Gateway#
Gateway#
Gateway#show ip nat statistics
Total translations: 1 (1 static, 0 dynamic, 0 extended)
Outside Interfaces: Serial0/0/1
Inside Interfaces: GigabitEthernet0/1
Hits: 81 Misses: 29
Expired translations: 22
Dynamic mappings:
-- Inside Source
access-list 1 pool public_access refCount 0
pool public_access: netmask 255.255.255.224
start 210.185.200.242 end 210.185.200.254
type generic, total addresses 13 , allocated 0 (0%), misses 0
Gateway#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

Step 7: Remove the static NAT entry.



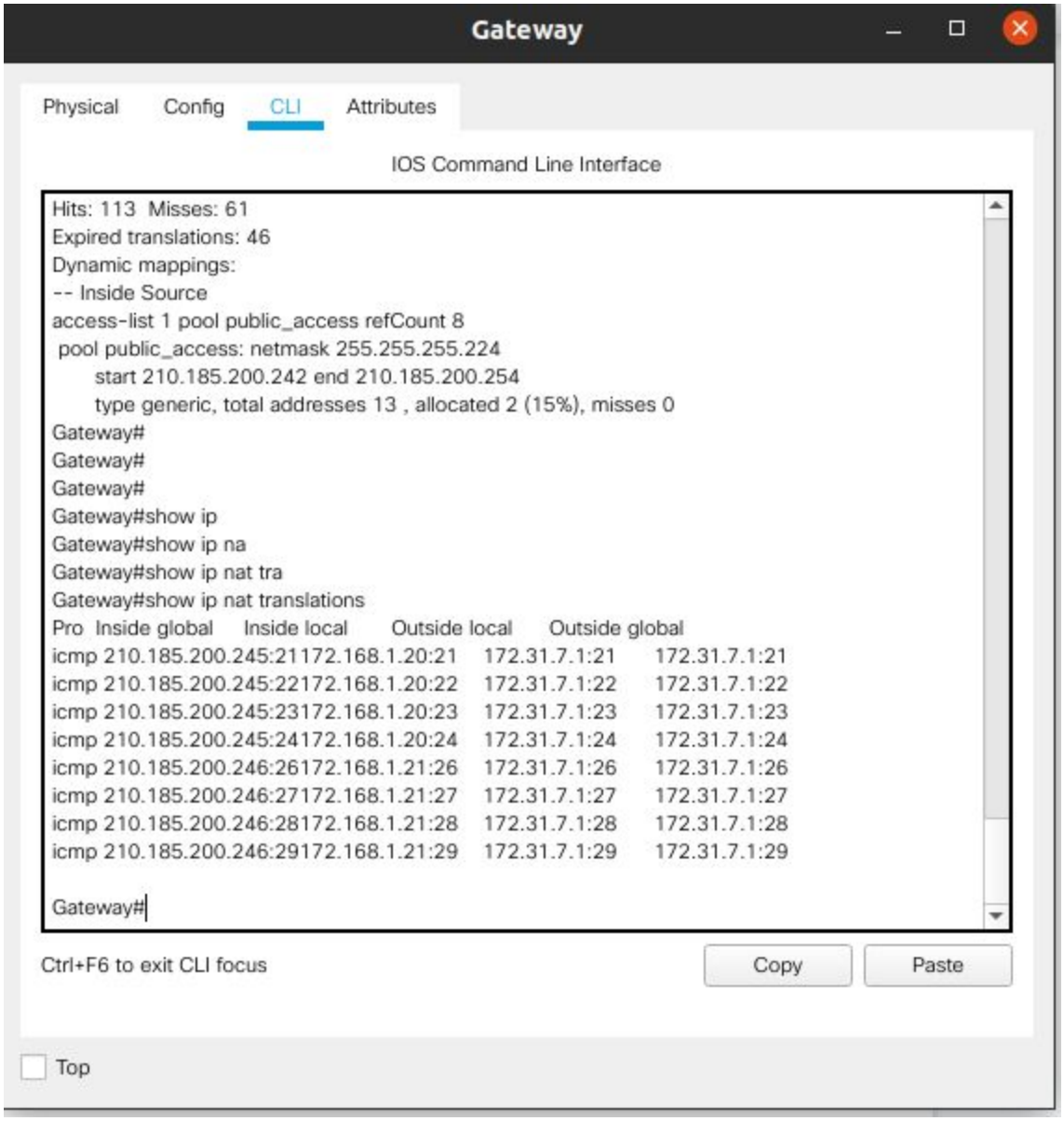


Clear ip translations



Ping from both hosts

Show ip nat statistics



And nat translations after pinging both hosts