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CS471-01
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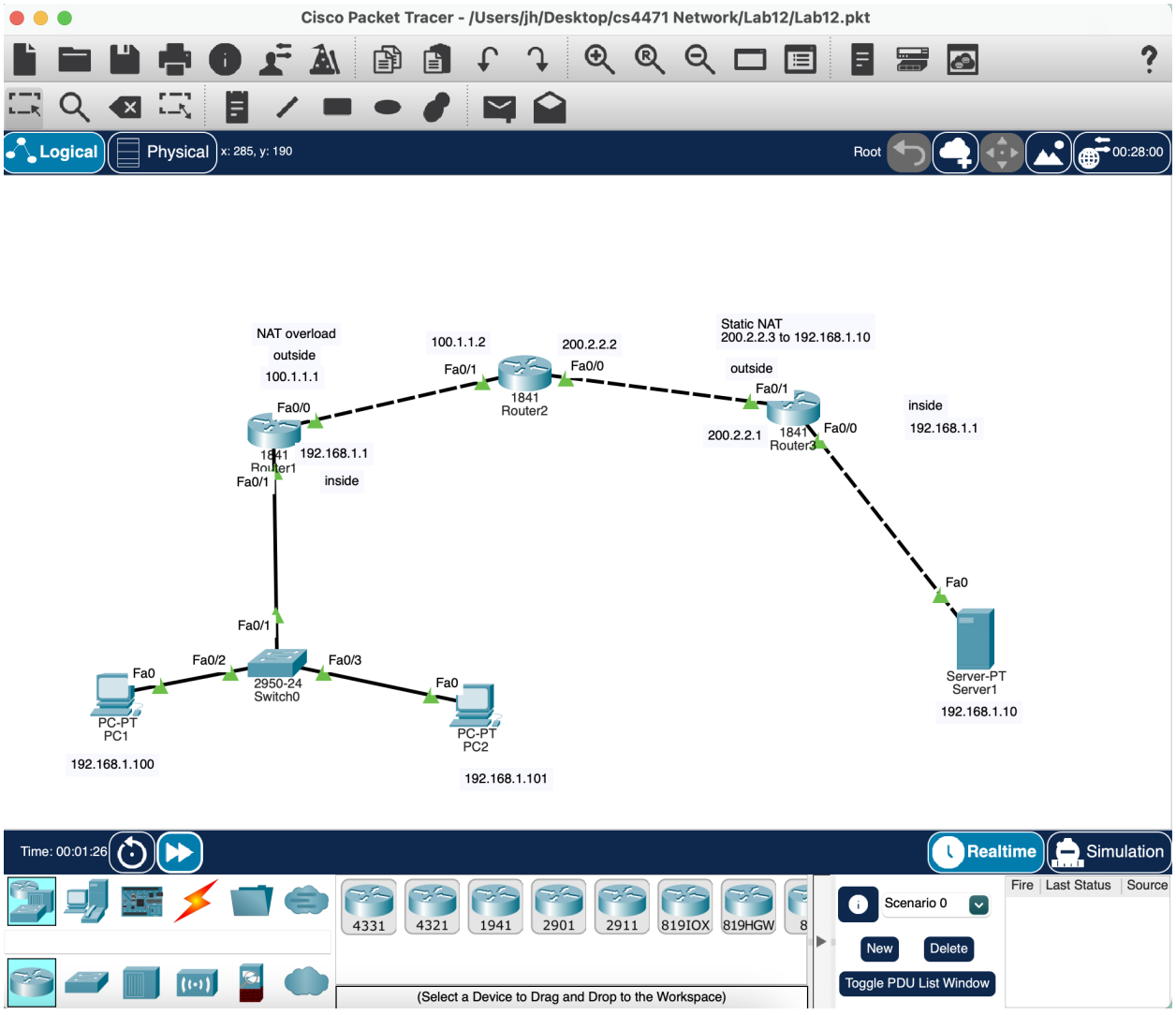
Lab 12 - Network Address Translations (A.K.A NAT)

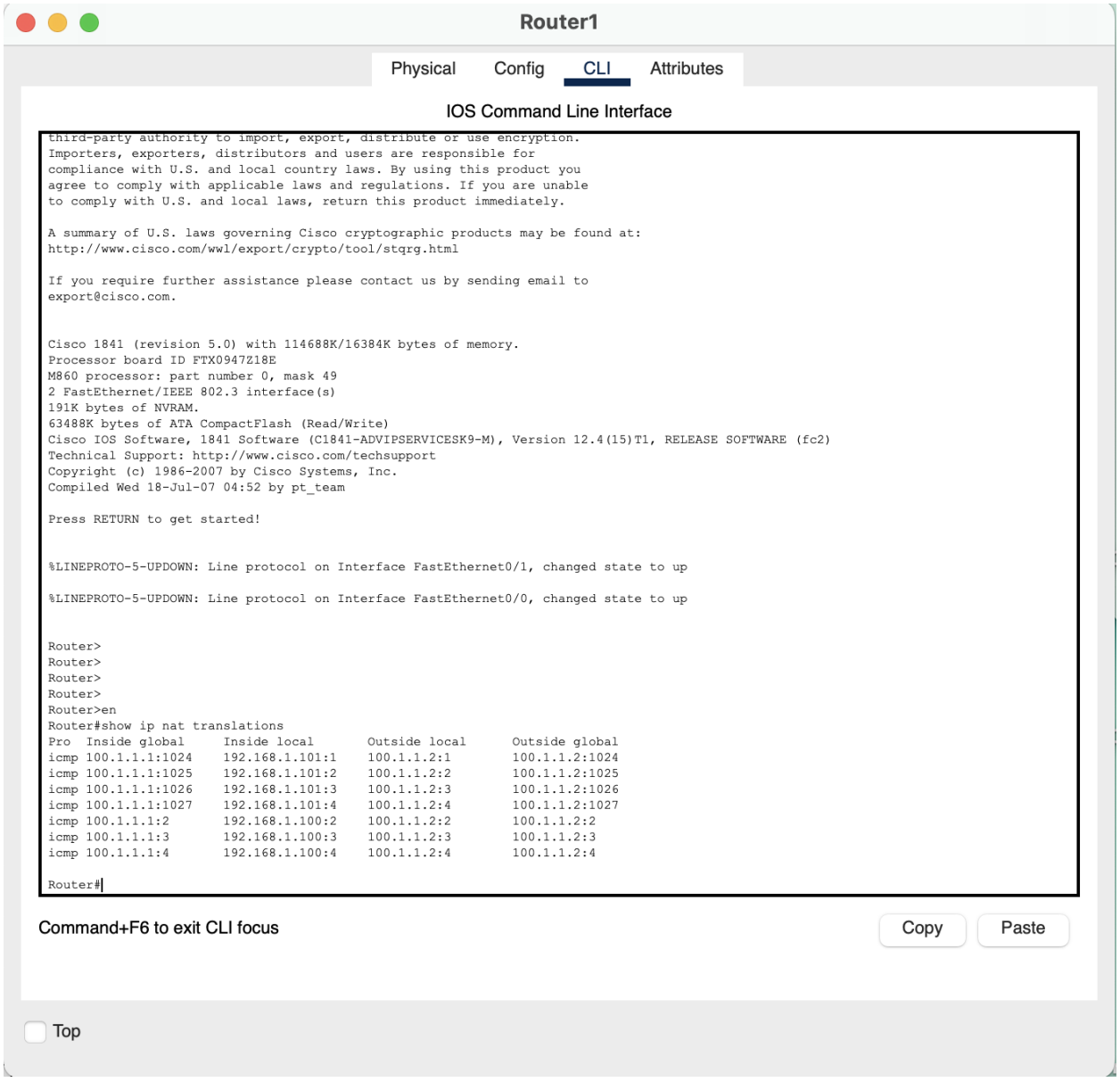
1. (1 pt) Submit screenshot of Cisco Packet Tracer network diagram created. Make sure that the port labels are shown (Options->Preferences->Show Port Labels). Make sure that your screenshot also includes IP addresses of each router interface and computer as shown in above diagram (hint: place notes).



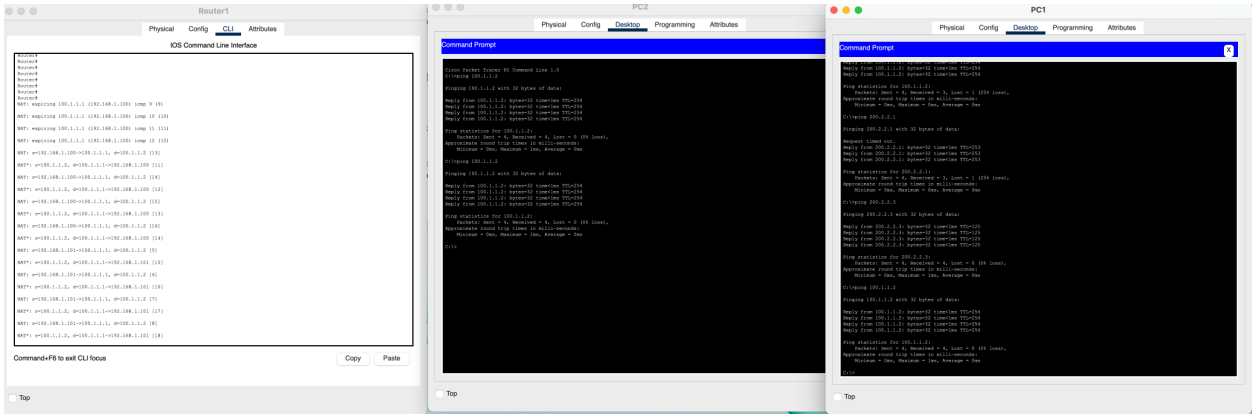
2. Configure NAT overload on Router1 to translate source IP address of traffic generated from inside network 192.168.1.0/24 to IP address of outside interface 100.1.1.1. From PC1 and PC2, verify that you can ping Router2's IP address 100.1.1.2.

a. (1pt) Submit screenshot of output of command "show ip nat translations" executed on CLI (command line interface) of Router1. The output should show inside local, inside global, outside local, and outside global values associated with ping traffic generated earlier. If you don't see

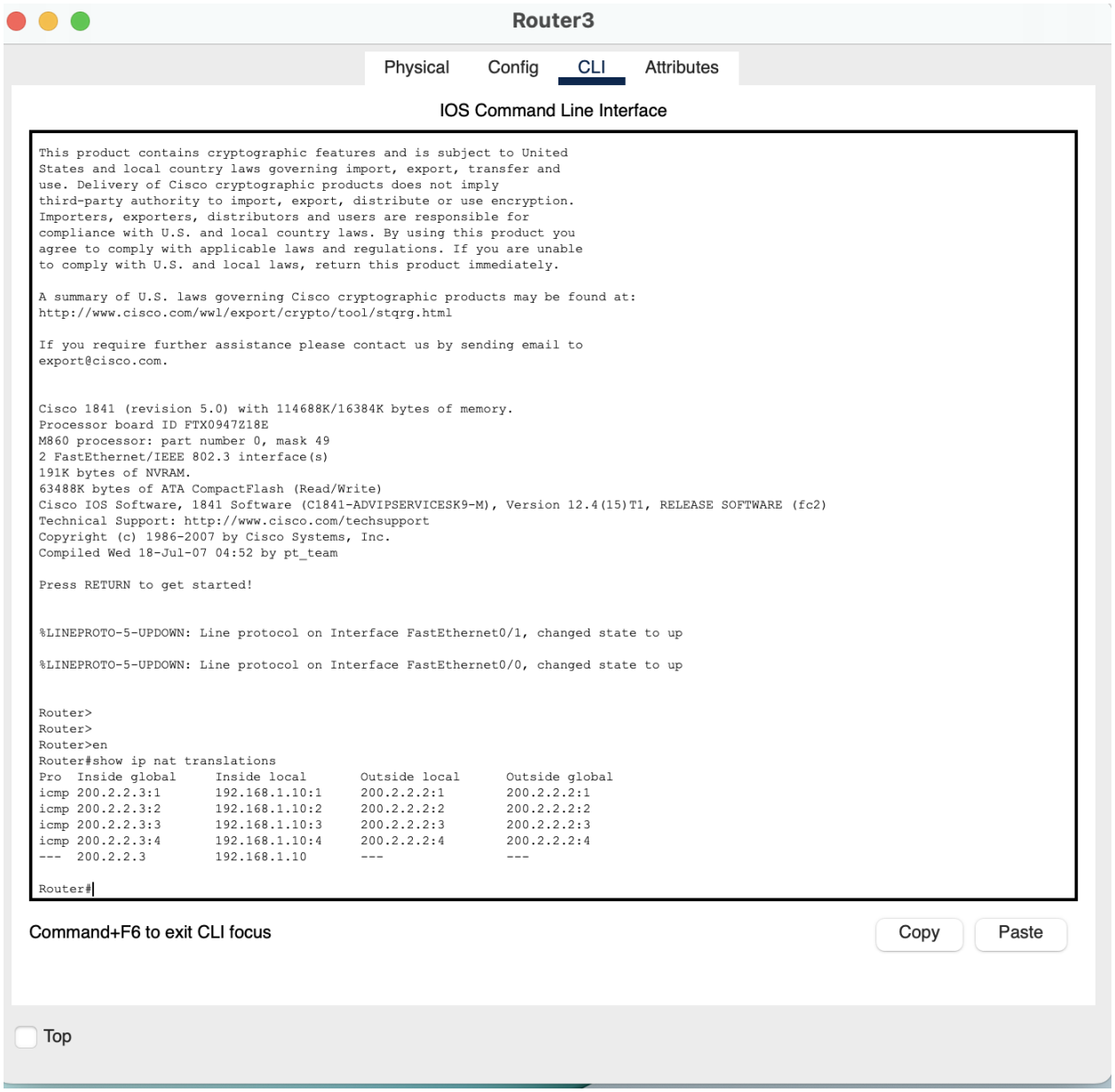
anything, you may need to generate ping traffic again from PC1 and PC2 to Router2's IP address 100.1.1.2.



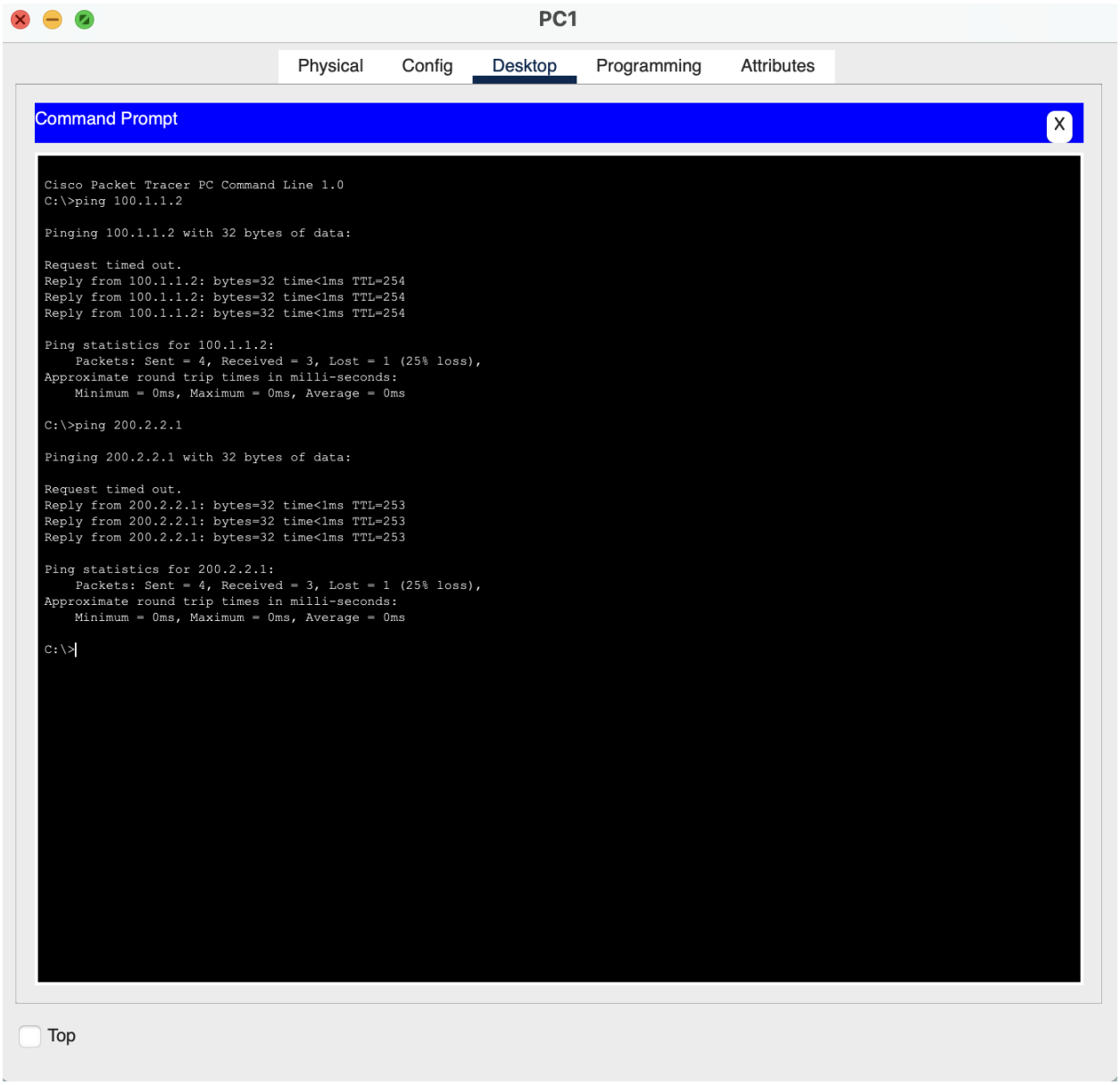
b. (1pt) Turn on NAT debugging in router via "debug ip nat" from router's enable mode (not global-config mode). Provide screenshot of output of NAT debugging. If you don't see anything, you may need to generate ping traffic again from PC1 and PC2 to Router2's IP address 100.1.1.2.



3. (1pt) Configure static NAT on Router3 to translate server1 IP address 192.168.1.10 to 200.2.2.3. From Server1, verify that you can ping Router2's IP address 200.2.2.2. Submit screenshot of output of command "show ip nat translations" executed on CLI (command line interface) of Router3. The output should show inside local, inside global, outside local, and outside global values associated with ping traffic generated earlier. If you don't see anything, you may need to generate ping traffic again from Server1 to Router2's IP address 200.2.2.2.

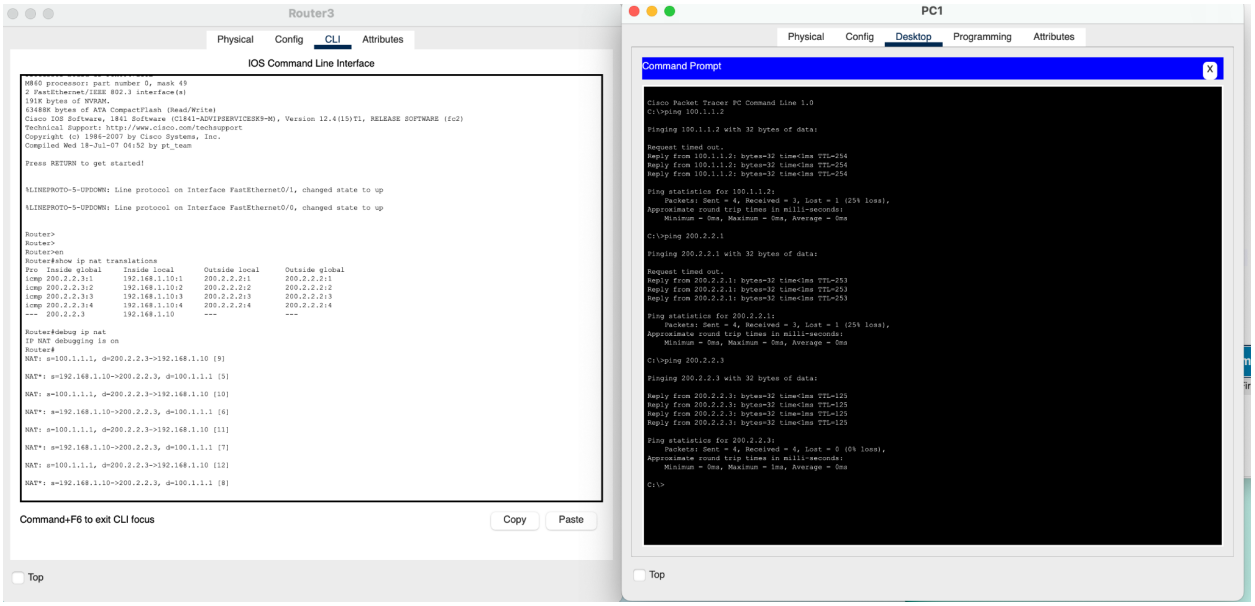


4. (1 pt) On PC1, verify that you can ping 200.2.2.1. What static or default routes need to be configured on Router1 and Router3 in order for the ping to be successful?



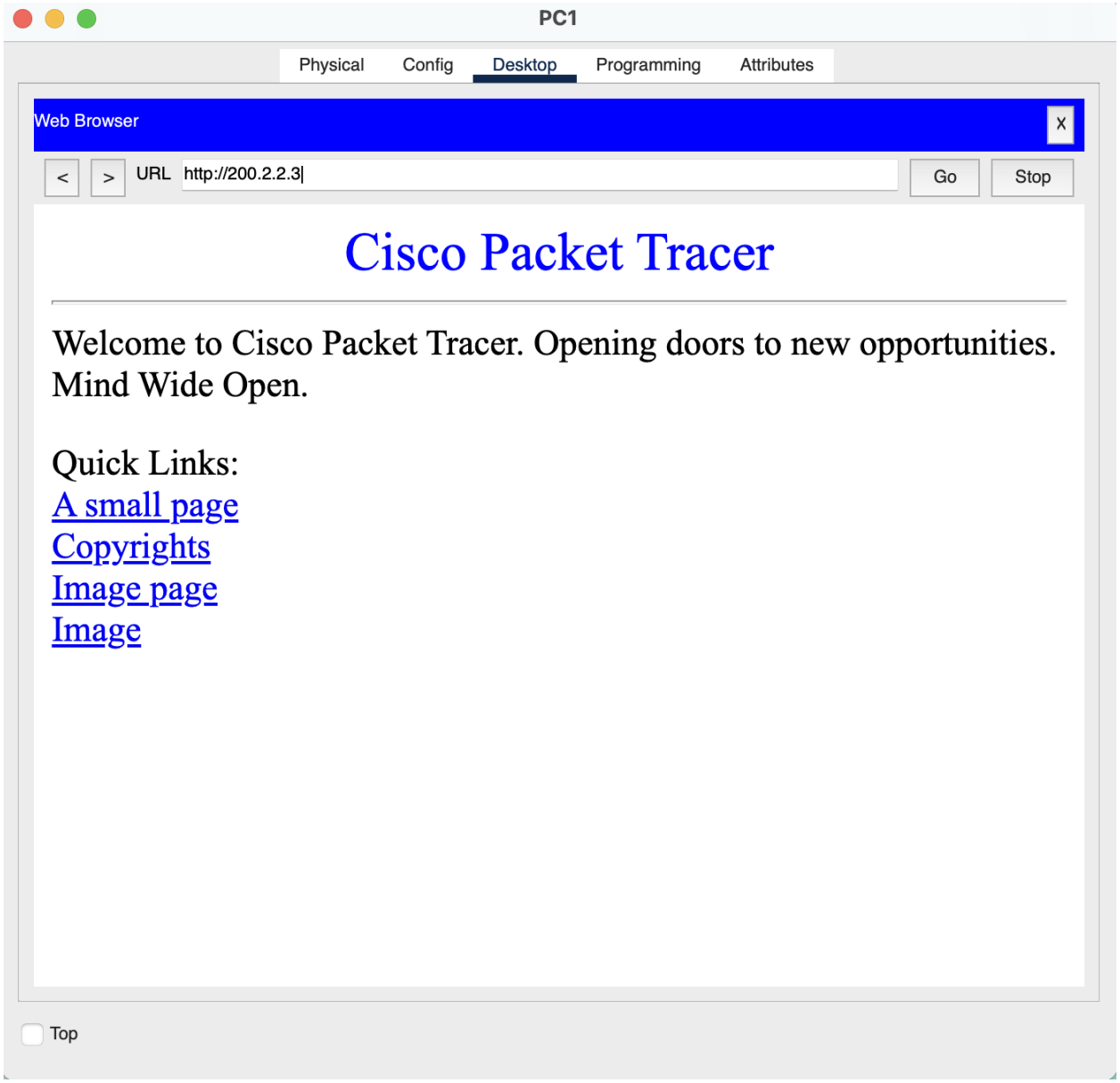
I believe because of the permission for all ip address in 192.168.1.0/24 it allows them to pass the PC's with the address 192.168.100 and .101 through. Initializing the overload as well allows more than one PC to go through as well. I think what also allows the PC to ping the ip address 200.2.2.1 is because the inside NAT's of both router3 and router1 are 192.168.1.1 and because of router2 as well since its directly linked with both routers.

5. (1pt) On Router3, turn on NAT debugging in router via "debug ip nat" from router's enable mode (not global-config mode). Provide screenshot of output of NAT debugging when PC1 is pinging 200.2.2.3. The screenshot should show the static NAT translation in action.



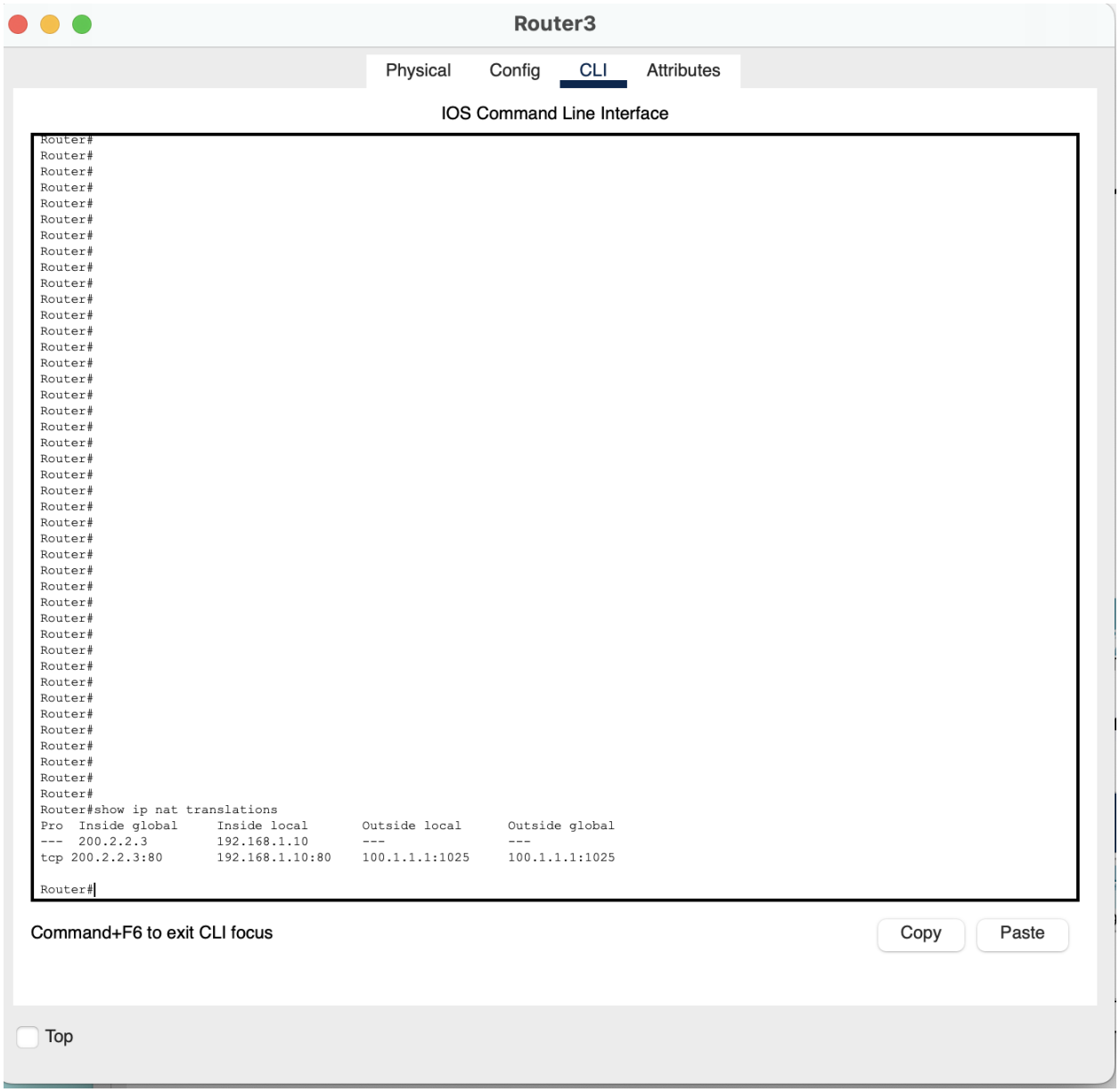
6. (2pts) On Server1, verify that web service is turned on. On PC1, verify that you can ping 200.2.2.3. On PC1, open a web browser to http://200.2.2.3.

a. Submit a screenshot of the web page displayed on the web browser.



b. Submit screenshot of output of command “show ip nat translations” executed on CLI (command line interface) of Router1

c. Submit screenshot of output of command “show ip nat translations” executed on CLI (command line interface) of Router3



7. (2 pts) submit printout of entire output of "show running-config" from CLI of Router1 and Router3

Router1

Router#show running-config
Building configuration...

Current configuration : 776 bytes
!
version 12.4
no service timestamps log datetime msec

```
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface FastEthernet0/0
ip address 100.1.1.1 255.0.0.0
ip nat outside
duplex auto
speed auto
!
interface FastEthernet0/1
```

```
ip address 192.168.1.1 255.255.255.0
ip nat inside
duplex auto
speed auto
!
interface Vlan1
no ip address
shutdown
!
router rip
!
ip nat inside source list NAT interface FastEthernet0/0 overload
ip classless
ip route 0.0.0.0 0.0.0.0 100.1.1.2
!
ip flow-export version 9
!
!
ip access-list standard NAT
permit 192.168.1.0 0.0.0.255
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
end
```

Router3

```
Router#show running-config
```

```
Building configuration...

Current configuration : 702 bytes
!
version 12.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
!
interface FastEthernet0/0
```

```
ip address 192.168.1.1 255.255.255.0
ip nat inside
duplex auto
speed auto
!
interface FastEthernet0/1
ip address 200.2.2.1 255.255.255.0
ip nat outside
duplex auto
speed auto
!
interface Vlan1
no ip address
shutdown
!
ip nat inside source static 192.168.1.10 200.2.2.3
ip classless
ip route 0.0.0.0 0.0.0.0 FastEthernet0/1
!
ip flow-export version 9
!
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
end
```