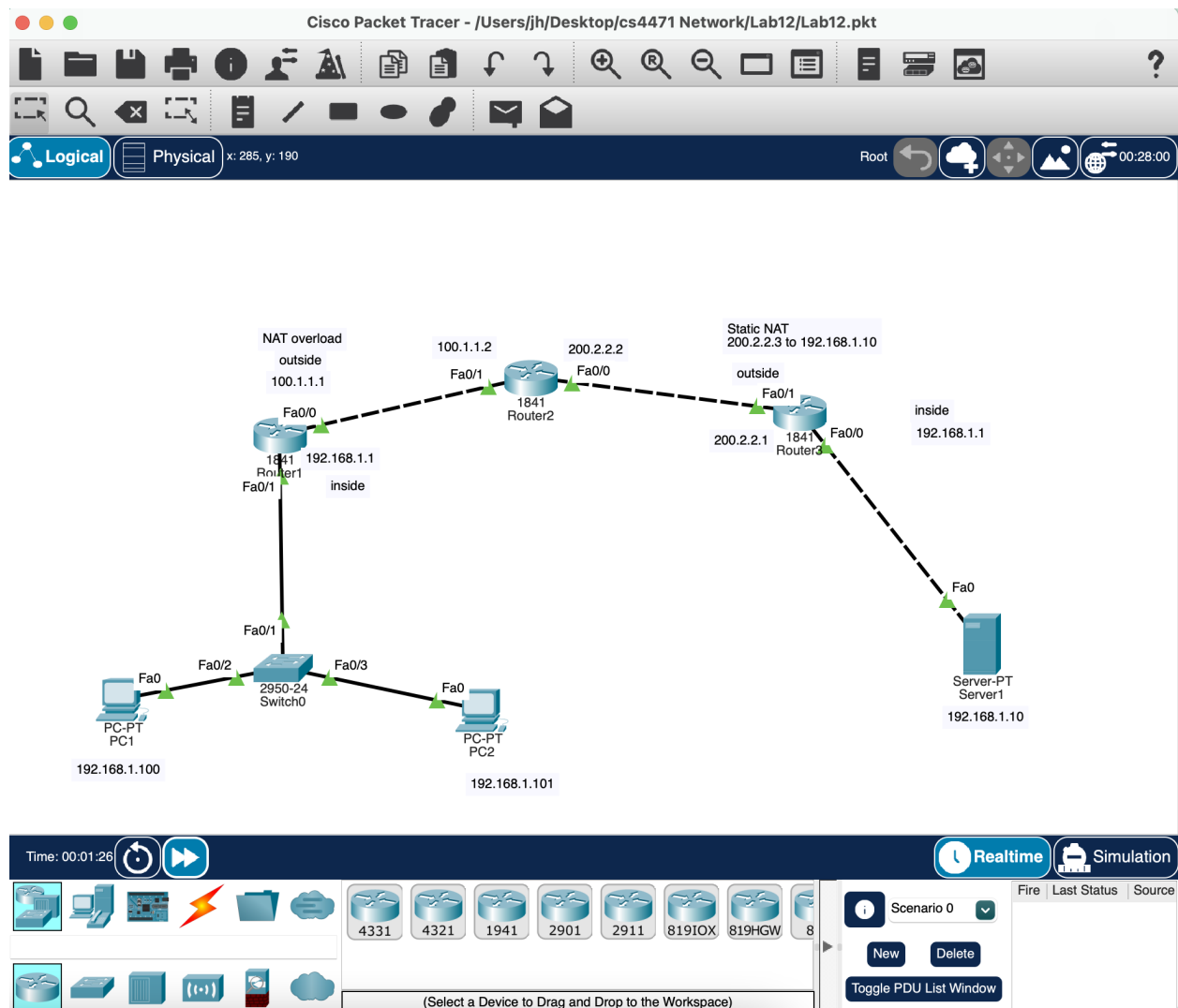


Lab 12 - Network Address Translations (A.K.A NAT)

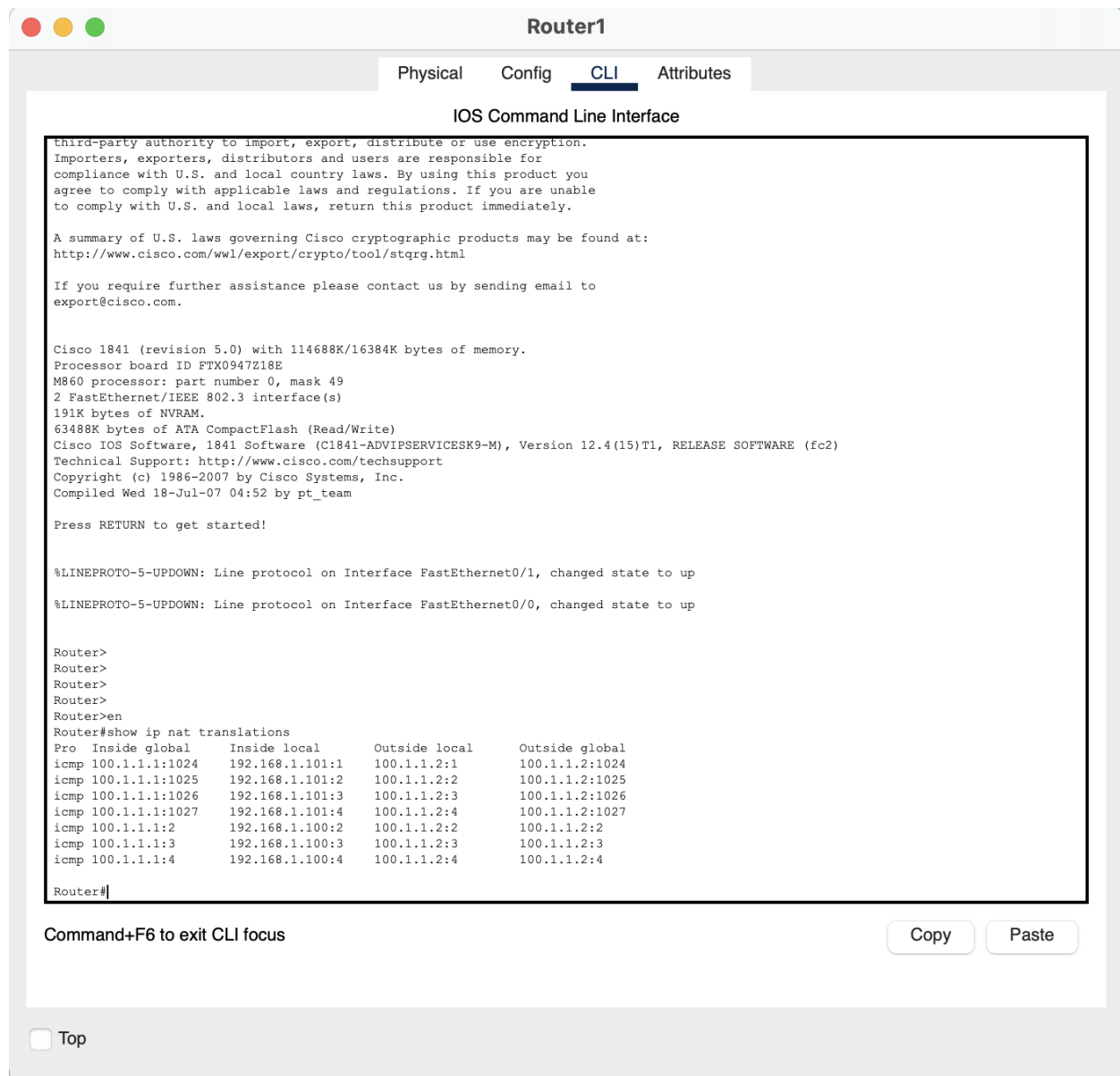
1. (1 pt) Submit screenshot of Cisco Packet Tracer network diagram created. Make sure that the port labels are shown (Options->Preferences->Show Port Labels). Make sure that your screenshot also includes IP addresses of each router interface and computer as shown in above diagram (hint: place notes).



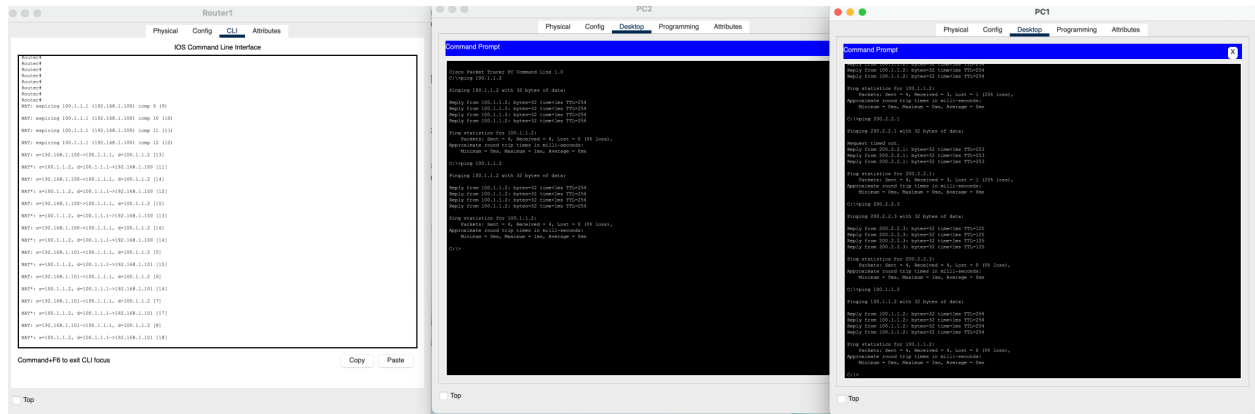
2. Configure NAT overload on Router1 to translate source IP address of traffic generated from inside network 192.168.1.0/24 to IP address of outside interface 100.1.1.1. From PC1 and PC2, verify that you can ping Router2's IP address 100.1.1.2.

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.

Router3

PhysicalConfigCLIAttributes

IOS Command Line Interface

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

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 1841 (revision 5.0) with 114688K/16384K bytes of memory.
Processor board ID FTX0947218E
M860 processor: part number 0, mask 49
2 FastEthernet/IEEE 802.3 interface(s)
191K bytes of NVRAM.
63488K bytes of ATA CompactFlash (Read/Write)
Cisco IOS Software, 1841 Software (C1841-ADVIPSERVICESK9-M), Version 12.4(15)T1, RELEASE SOFTWARE (fc2)
Technical Support: <http://www.cisco.com/techsupport>
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 04:52 by pt_team

Press RETURN to get started!

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

Router>
Router>
Router>en
Router#show ip nat translations

Pro	Inside global	Inside local	Outside local	Outside global
icmp	200.2.2.3:1	192.168.1.10:1	200.2.2.2:1	200.2.2.2:1
icmp	200.2.2.3:2	192.168.1.10:2	200.2.2.2:2	200.2.2.2:2
icmp	200.2.2.3:3	192.168.1.10:3	200.2.2.2:3	200.2.2.2:3
icmp	200.2.2.3:4	192.168.1.10:4	200.2.2.2:4	200.2.2.2:4
---	200.2.2.3	192.168.1.10	---	---

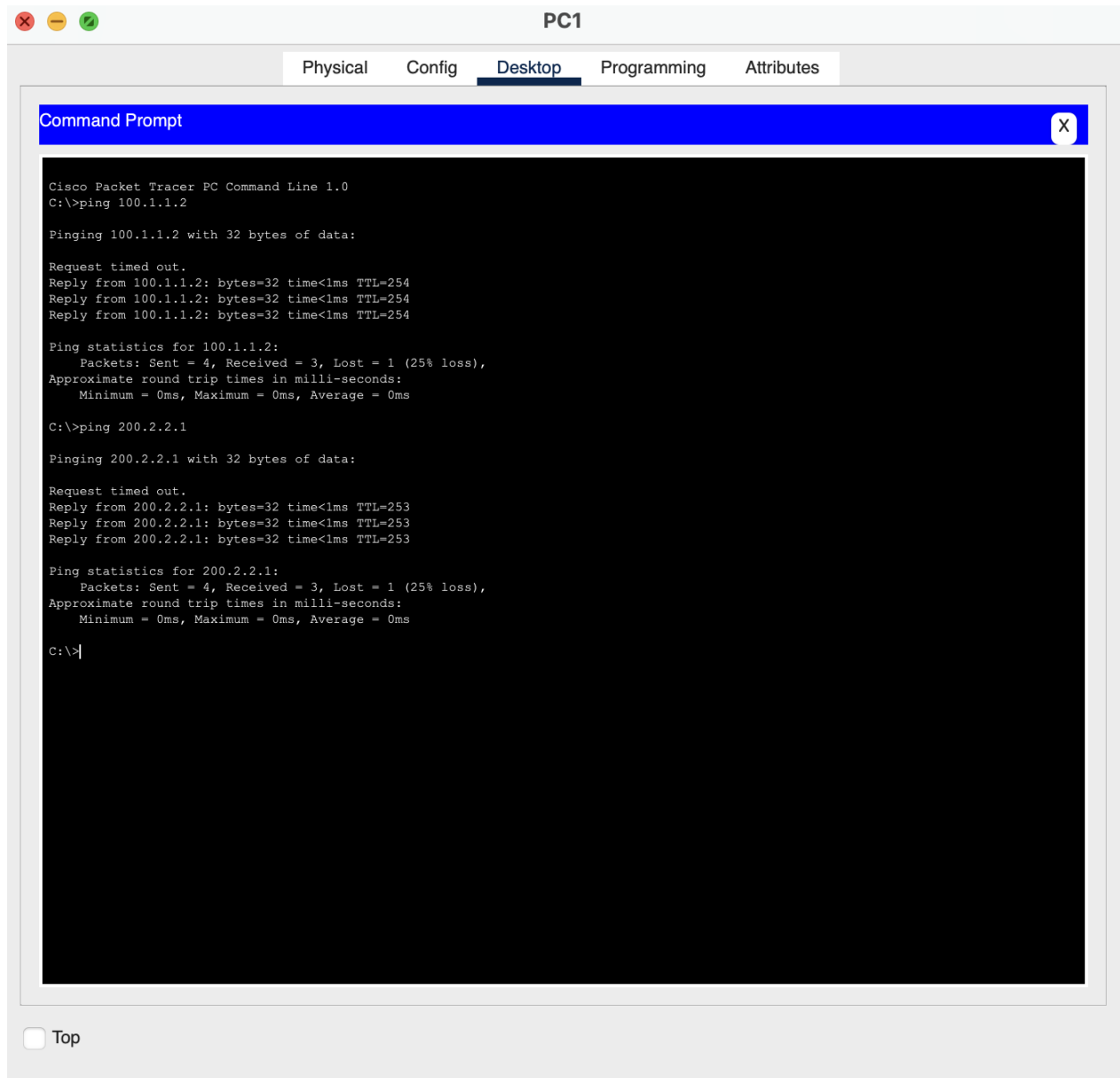
Router#

Command+F6 to exit CLI focus

CopyPaste

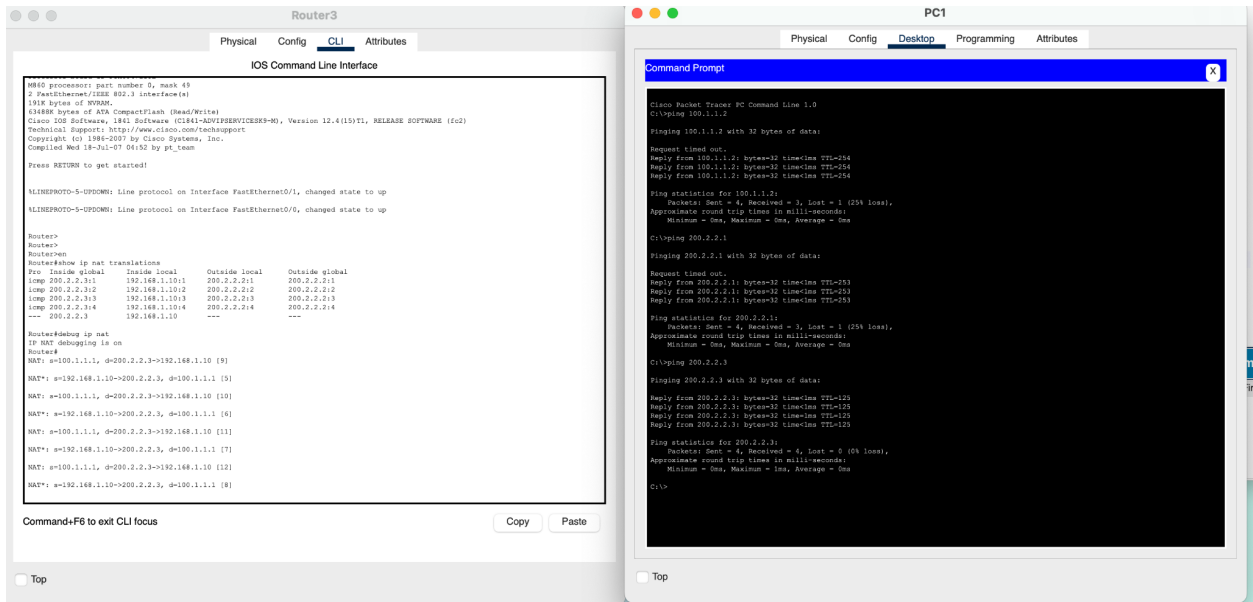
☐ Top

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?



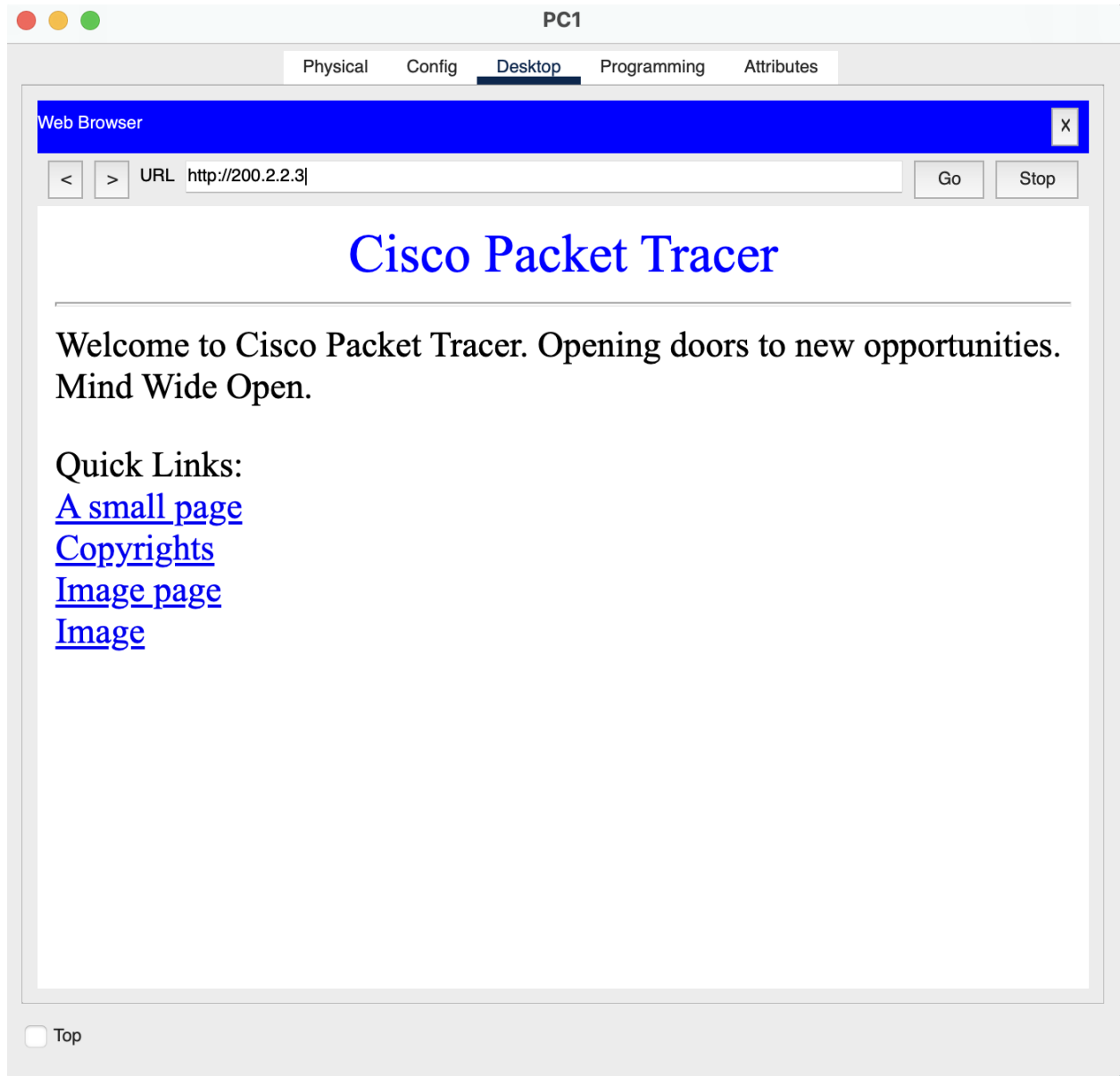
I believe because of the permission for all ip address in 192.168.1.0/24 it allows them to pass the PC's with the address 192.168.100 and .101 through. Initializing the overload as well allows more than one PC to go through as well. I think what also allows the PC to ping the ip address 200.2.2.1 is 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


```
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
```