

---

# COMPUTER NETWORKS

---

EXP 12



## **Implementation of Network Address Translation using Packet Tracer**

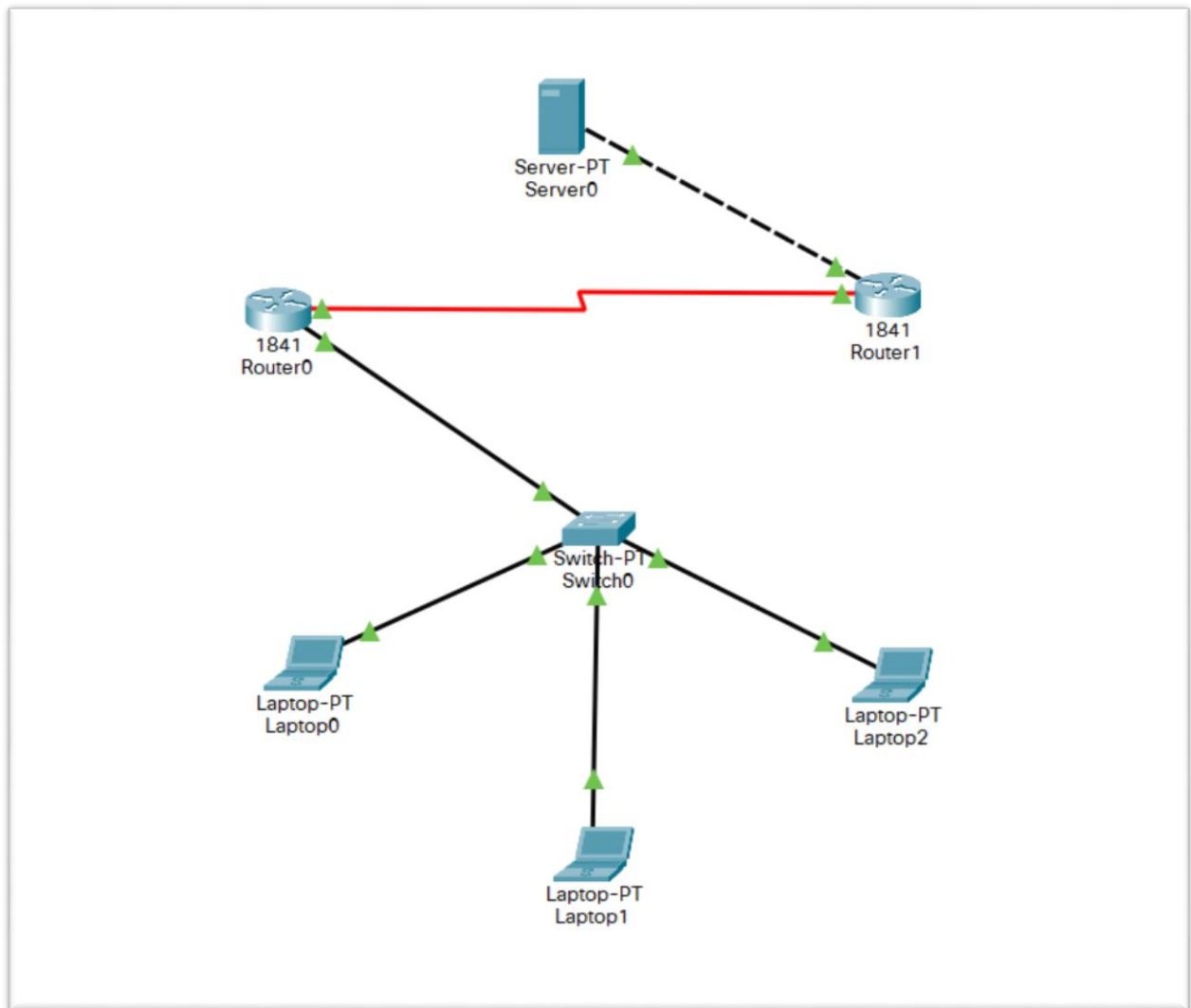
OCTOBER 26, 2021

ROEHIT RANGANATHAN  
RA1911033010017 | L2

Aim:

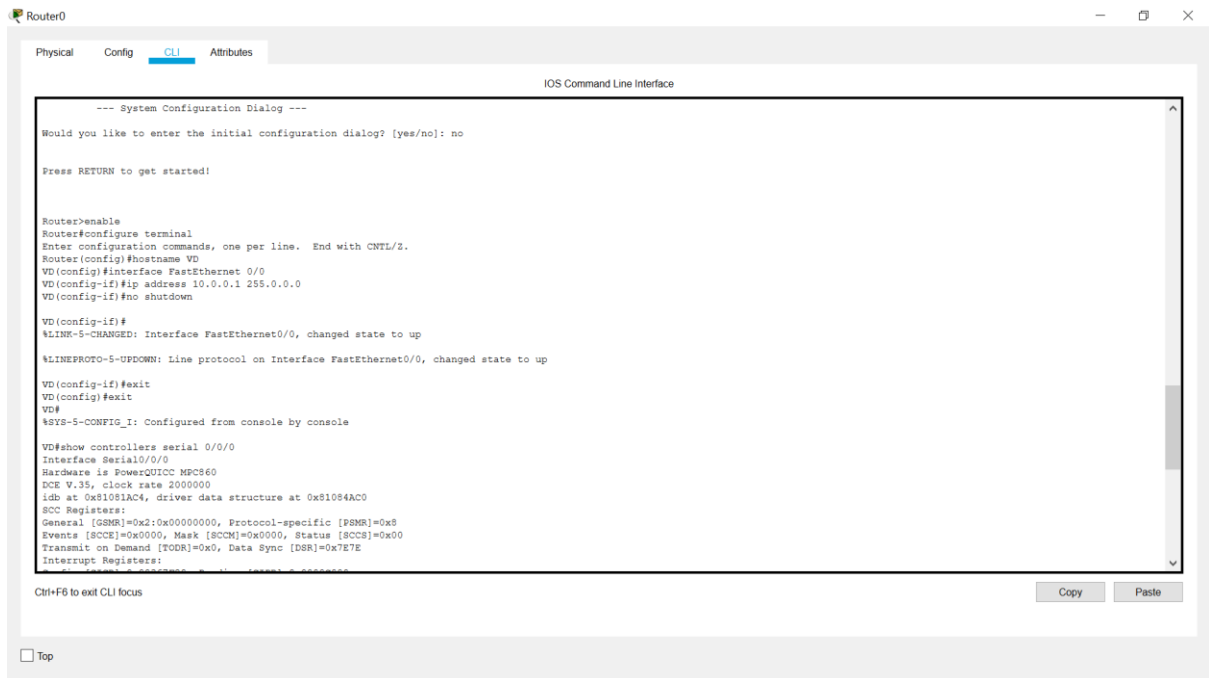
To design a NAT (Network Address Translation) on Cisco Packet Tracer.

Diagram:



Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	Laptop0	Laptop1	ICMP		0.000	N	0	(edit)	(delete)
	Successful	Laptop2	Laptop1	ICMP		0.000	N	1	(edit)	(delete)
	Successful	Laptop0	Laptop2	ICMP		0.000	N	2	(edit)	(delete)

## Router 0 CLI



The screenshot shows the Router0 CLI window with the 'CLI' tab selected. The window title is 'Router0'. The main content area displays the 'IOS Command Line Interface' with the following text:

```
--- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]: no

Press RETURN to get started!

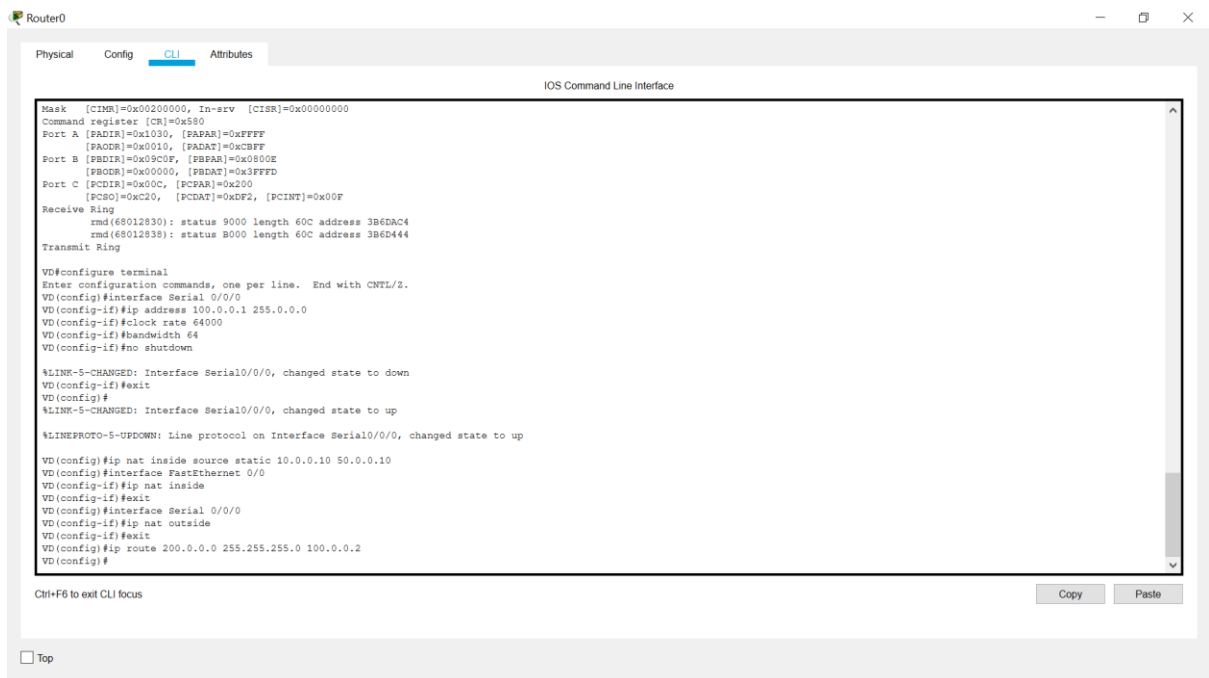
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname VD
VD(config)#interface FastEthernet 0/0
VD(config-if)#ip address 10.0.0.1 255.0.0.0
VD(config-if)#no shutdown

VD(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

VD(config-if)#exit
VD(config)#exit
VD#
%SYS-5-CONFIG_I: Configured from console by console

VD#show controllers serial 0/0/0
Interface Serial0/0/0
Hardware is PowerQUICC MPC860
DCE V.35, clock rate 2000000
idb at 0x81081AC4, driver data structure at 0x81084AC0
SCC Registers:
General [GSMR]=0x2:0x00000000, Protocol-specific [PSMR]=0x8
Events [SCCE]=0x0000, Mask [SCCM]=0x0000, Status [SCCS]=0x00
Transmit on Demand [TODR]=0x0, Data Sync [DSR]=0x7E7E
Interrupt Registers:
```

At the bottom of the window, there is a 'Top' button and a 'Copy' button.



The screenshot shows the Router0 CLI window with the 'CLI' tab selected. The window title is 'Router0'. The main content area displays the 'IOS Command Line Interface' with the following text:

```
Mask [CIMR]=0x00200000, In-srv [CISR]=0x00000000
Command register [CR]=0x500
Port A [PADIR]=0x1030, [PAPAR]=0xFFFF
[PACDR]=0x0010, [PADAT]=0xC8FF
Port B [PBDIR]=0x09C0F, [PBPAP]=0x0800E
[PBCDR]=0x00000, [PBDAT]=0x3FFFD
Port C [PCDIR]=0x00C, [PCPAR]=0x200
[PCSO]=0x0C20, [PCDRAT]=0x0F2, [PCINT]=0x00F
Receive Ring
rmd(68012830): status 9000 length 60C address 3B6DAC4
rmd(68012838): status B000 length 60C address 3B6D444
Transmit Ring

VD#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
VD(config)#interface Serial 0/0/0
VD(config-if)#ip address 100.0.0.1 255.0.0.0
VD(config-if)#clock rate 64000
VD(config-if)#bandwidth 64
VD(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
VD(config-if)#exit
VD(config)#
%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

VD(config)#ip nat inside source static 10.0.0.10 50.0.0.10
VD(config)#interface FastEthernet 0/0
VD(config-if)#ip nat inside
VD(config-if)#exit
VD(config)#interface Serial 0/0/0
VD(config-if)#ip nat outside
VD(config-if)#exit
VD(config)#ip route 200.0.0.0 255.255.255.0 100.0.0.2
VD(config)#
```

At the bottom of the window, there is a 'Top' button and a 'Copy' button.

## Router 1 CLI



Router1

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Press RETURN to get started!

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname AS
AS(config)#interface FastEthernet 0/0
AS(config-if)#ip address 192.168.1.1 255.255.255.0
AS(config-if)#no shutdown

AS(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

AS(config-if)#exit
AS(config)#interface Serial 0/0/0
AS(config-if)#ip address 100.0.0.2 255.0.0.0
AS(config-if)#no shutdown

AS(config-if)#
%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

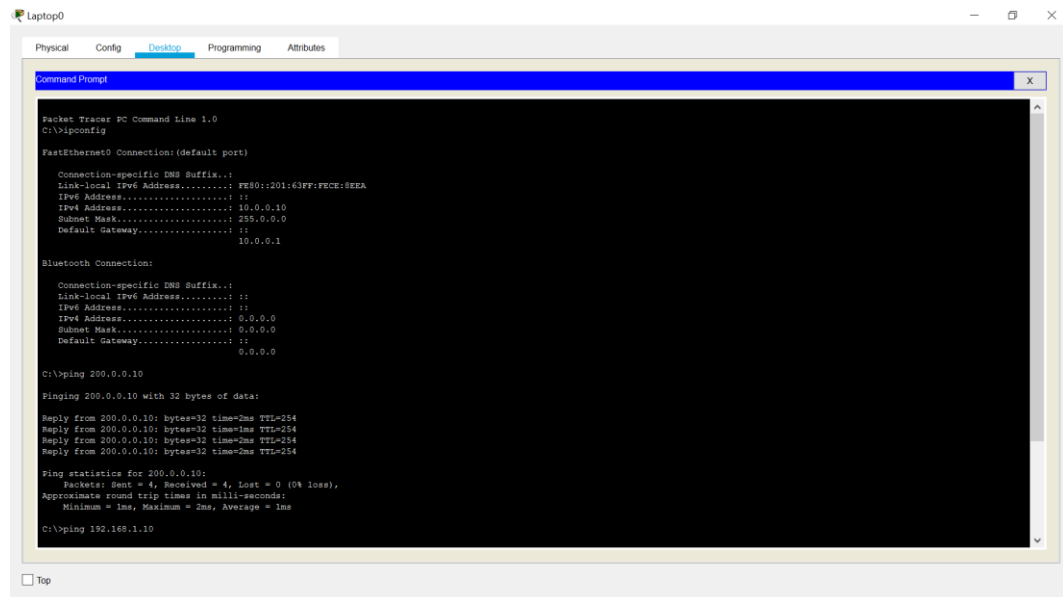
AS(config-if)#exit
AS(config)#
AS(config)#ip nat inside source static 192.168.1.1 200.0.0.10
AS(config)#interface FastEthernet 0/0
AS(config-if)#exit
AS(config)#interface Serial 0/0/0
AS(config-if)#ip nat outside
AS(config-if)#exit
AS(config)#ip route 50.0.0.0 255.0.0.0 100.0.0.1
AS(config)#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

## Laptop 0 CMD



Laptop0

Physical Config **Desktop** Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::201:63FF:FECE:8E8A
    IPv6 Address . . . . .: ::
    IPv4 Address. . . . .: 10.0.0.10
    Subnet Mask . . . . .: 255.0.0.0
    Default Gateway . . . . .: ::

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address. . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::

C:\>ping 200.0.0.10

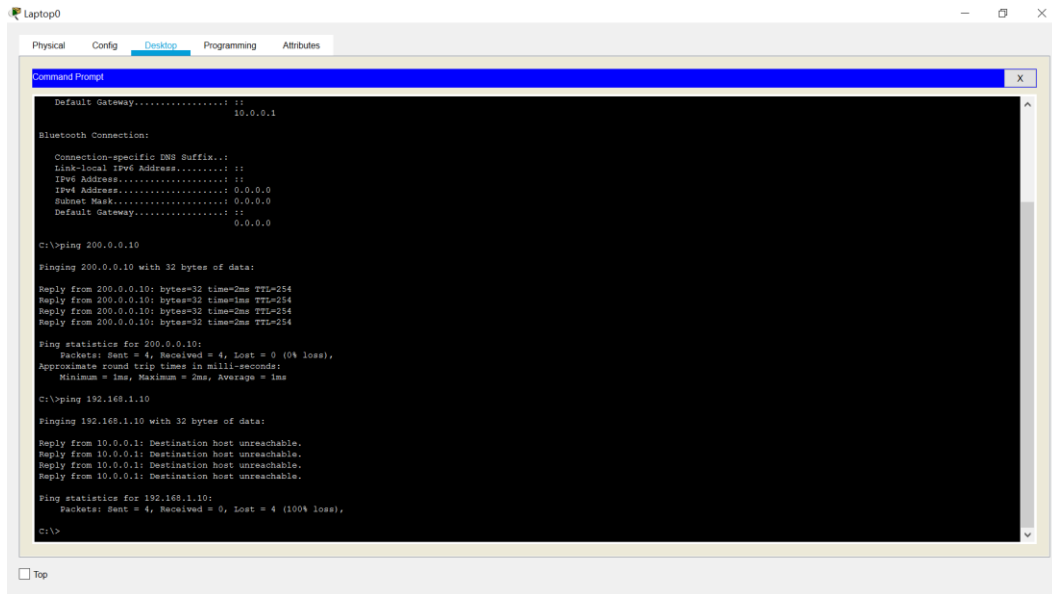
Pinging 200.0.0.10 with 32 bytes of data:

Reply from 200.0.0.10: bytes=32 time=2ms TTL=254
Reply from 200.0.0.10: bytes=32 time=1ms TTL=254
Reply from 200.0.0.10: bytes=32 time=2ms TTL=254
Reply from 200.0.0.10: bytes=32 time=2ms TTL=254

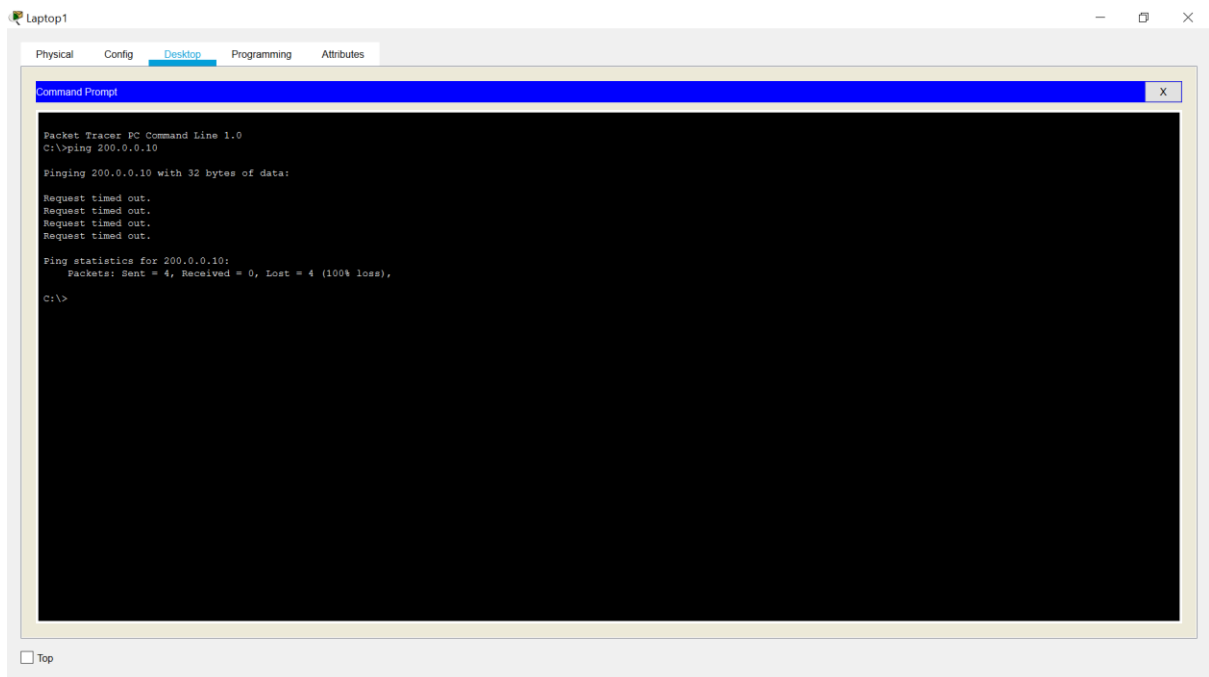
Ping statistics for 200.0.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\>ping 192.168.1.10
```

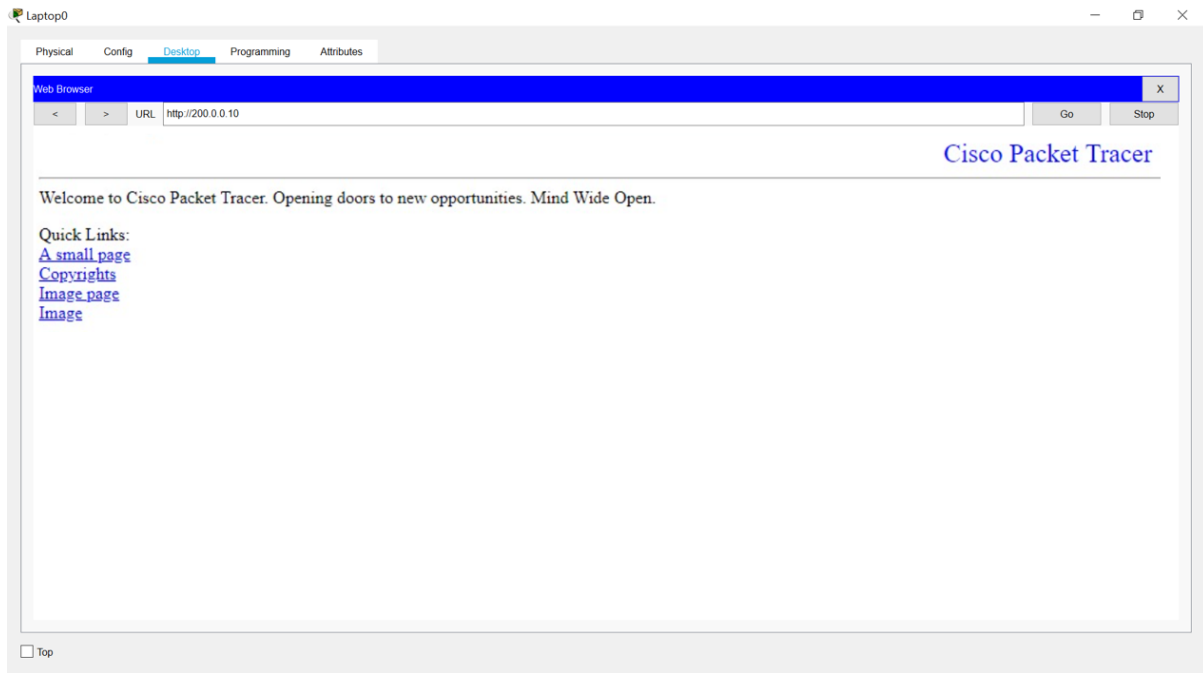
☐ Top



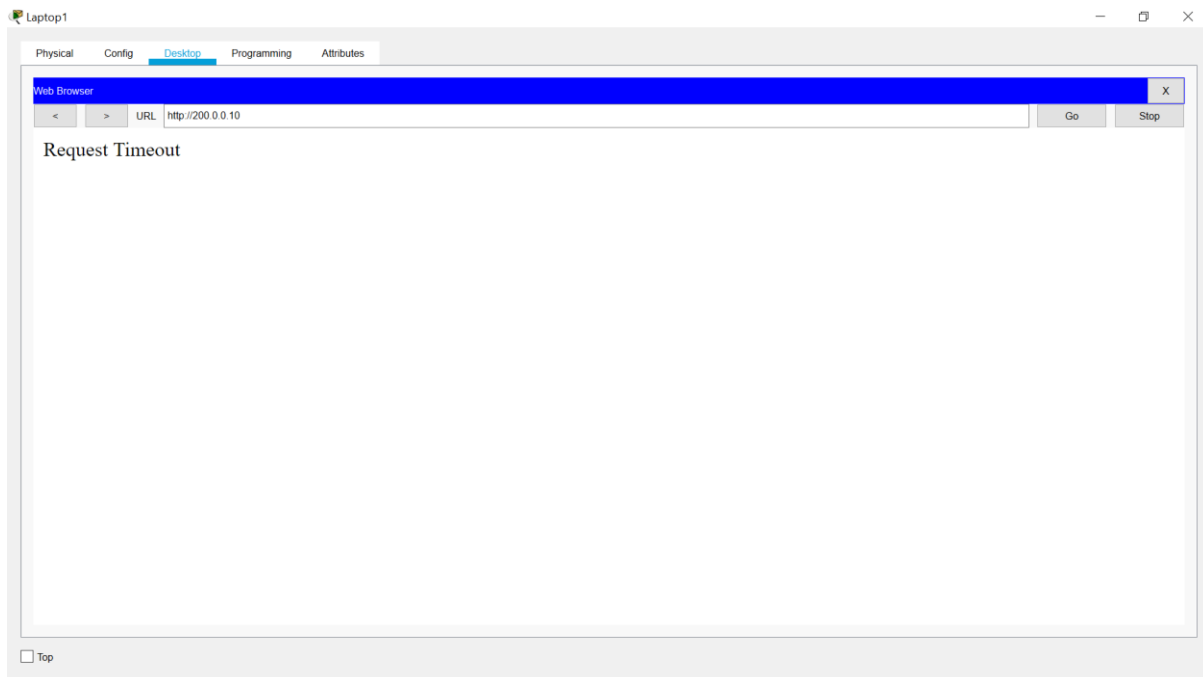
Laptop 1 CMD



Laptop 0 Browser



## Laptop 1 Browser



## RESULT

The above aim has been successfully achieved and verified.