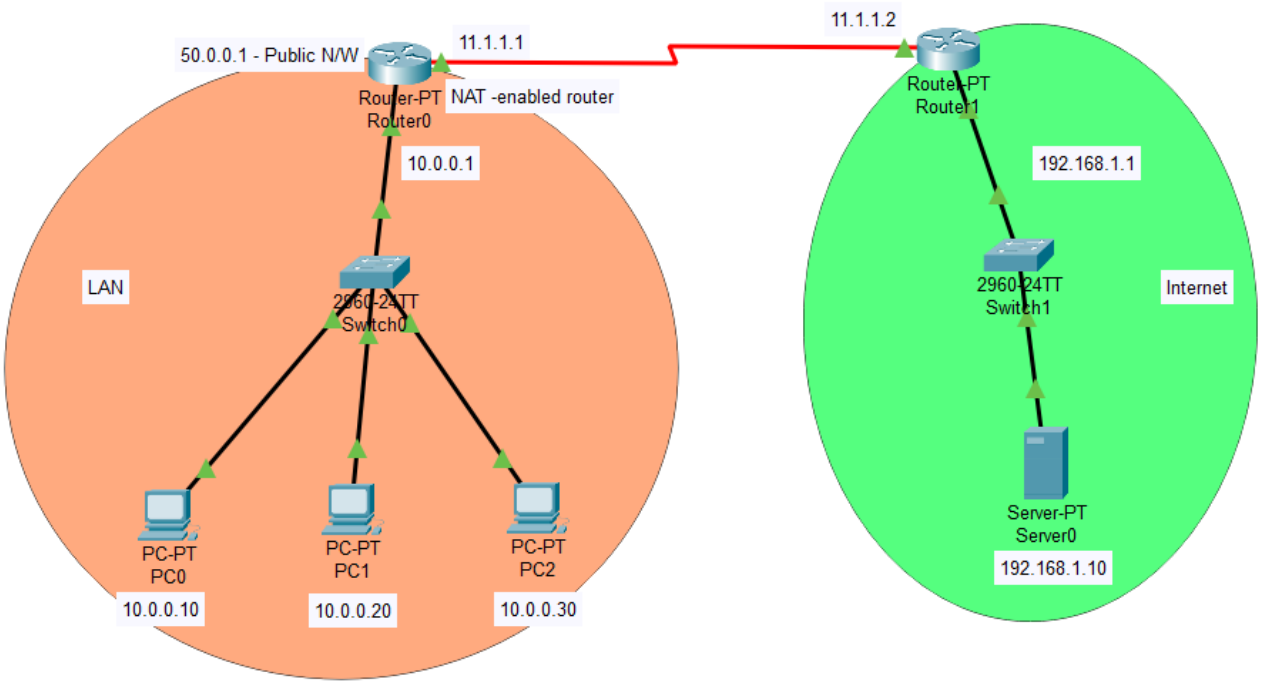
Academic Year: 2023-24 **Semester:** V
Class/Branch: TE/DS **Subject:** WCN

Experiment No. 09

1. **Aim:** To design and simulate NAT on router using Cisco packet tracer/ GNS3.

Procedure:

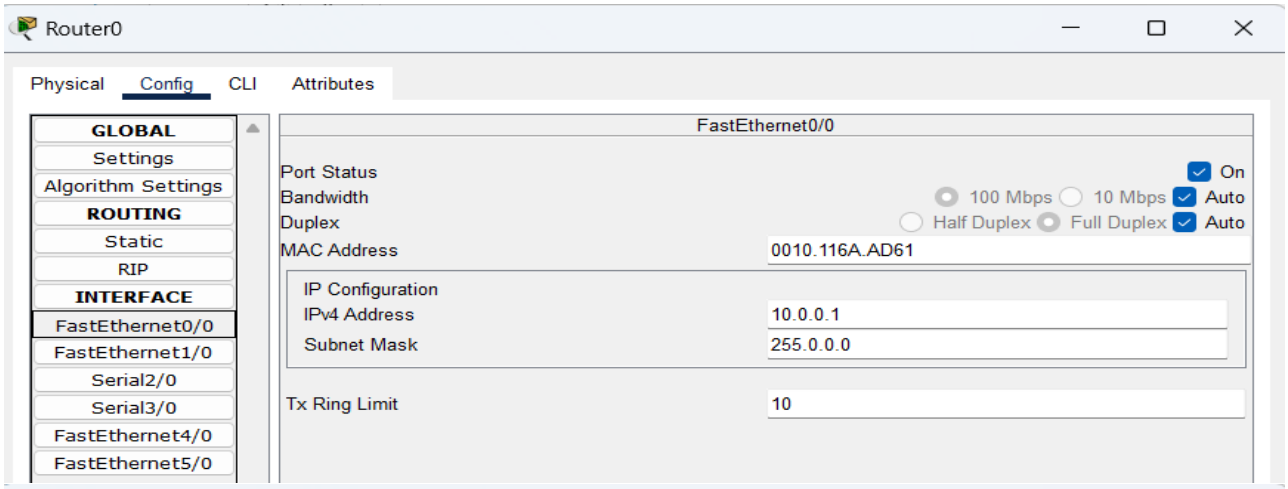


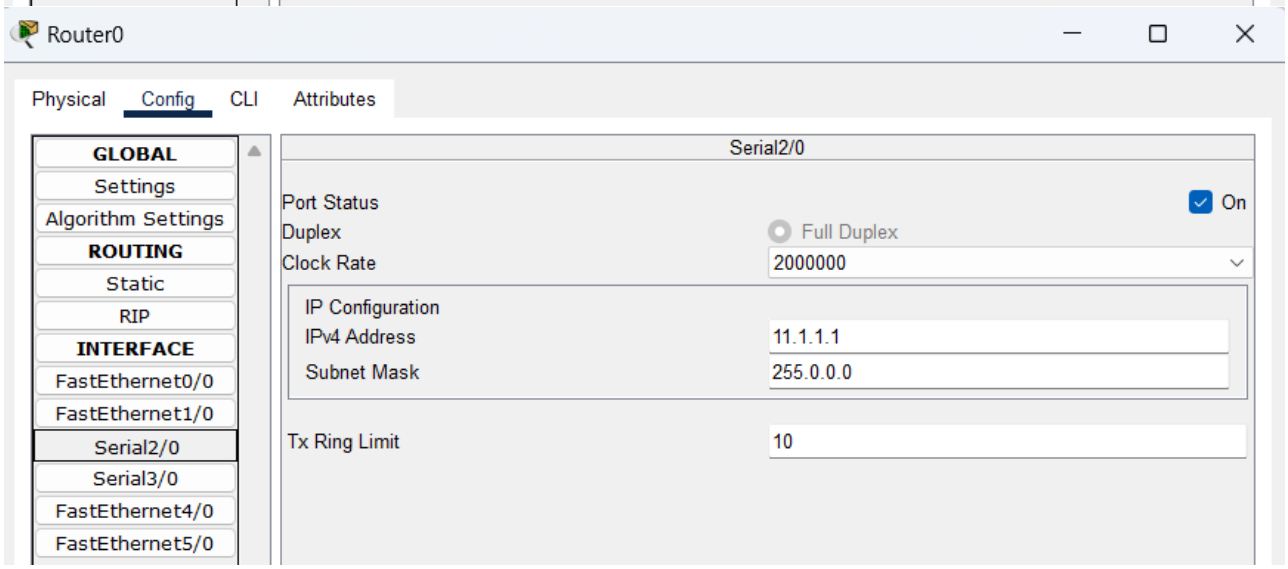
STEP 1: NETWORK CONFIGURATION

STEP 2: ROUTER CONFIGURATION

Router 0

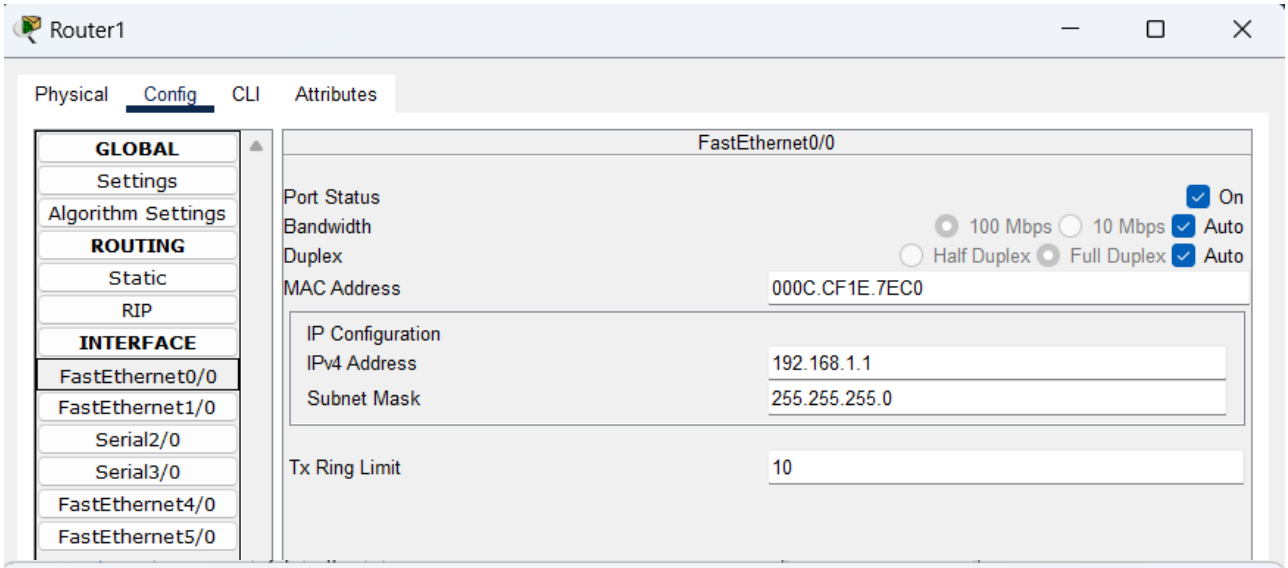
```
Device Name: Router0
Device Model: Router-PT
Hostname: Router

Port            Link   IP Address        IPv6 Address                          MAC Address
FastEthernet0/0 Up     10.0.0.1/8        <not set>                             0010.116A.AD61
FastEthernet1/0 Down   <not set>         <not set>                             0003.E4D8.50D9
Serial2/0       Up     11.1.1.1/8        <not set>                             <not set>
Serial3/0       Down   <not set>         <not set>                             <not set>
FastEthernet4/0 Down   <not set>         <not set>                             0007.ECE0.48C8
FastEthernet5/0 Down   <not set>         <not set>                             0005.5EB7.7946

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Router0
```

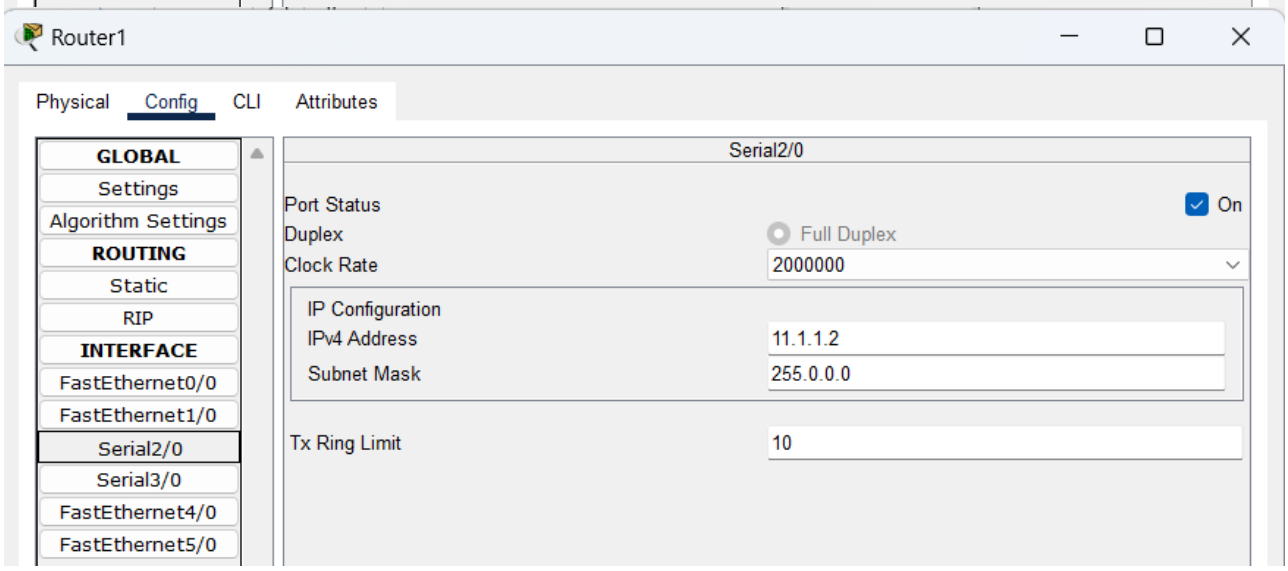




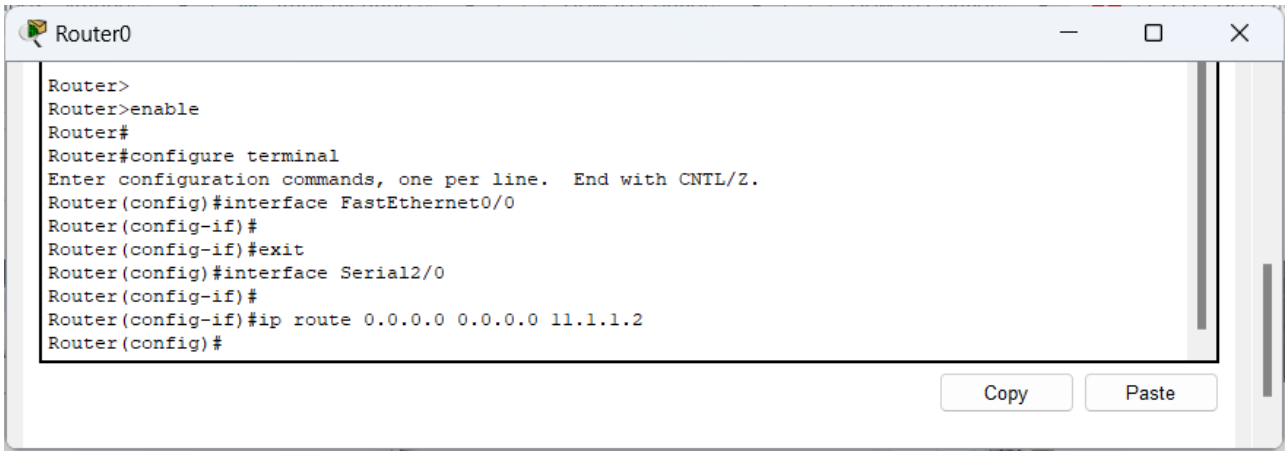
Router 1

```
Device Name: Router1
Device Model: Router-PT
Hostname: Router

Port              Link   IP Address         IPv6 Address                          MAC Address
FastEthernet0/0   Up     192.168.1.1/24     <not set>                             000C.CF1E.7EC0
FastEthernet1/0   Down   <not set>          <not set>                             0003.E453.8D69
Serial2/0         Up     11.1.1.2/8         <not set>                             <not set>
Serial3/0         Down   <not set>          <not set>                             <not set>
FastEthernet4/0   Down   <not set>          <not set>                             0002.1724.5179
FastEthernet5/0   Down   <not set>          <not set>                             0001.C921.40C9

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Router1
```

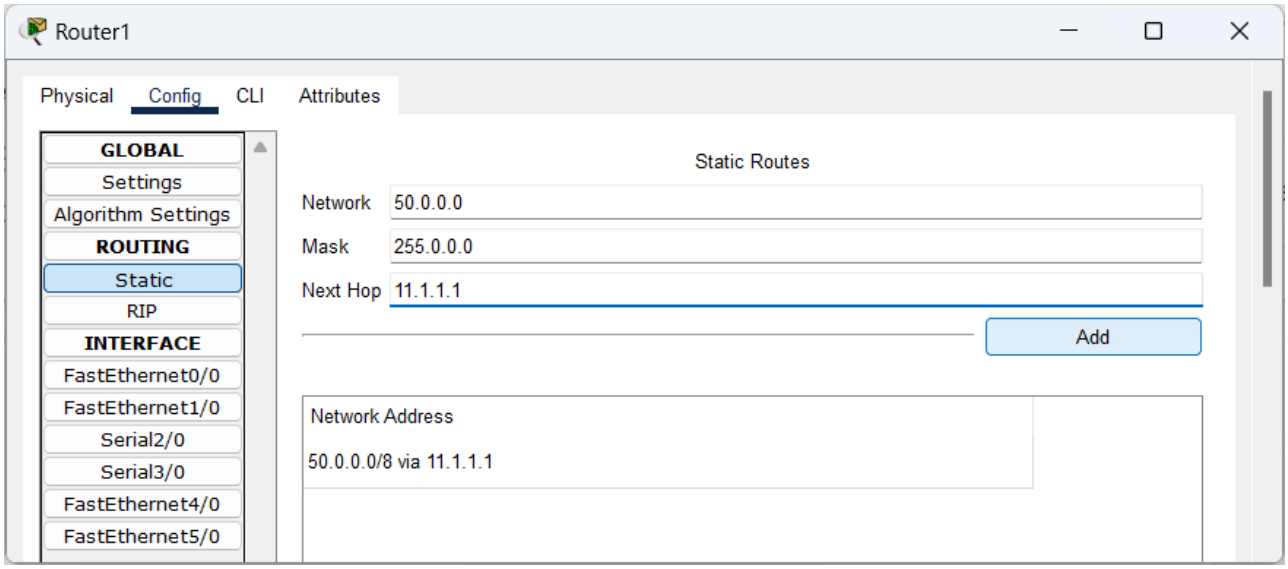




STEP 3: IP ROUTING-CONFIGURING DEFAULT ROUTE TO INTERNET

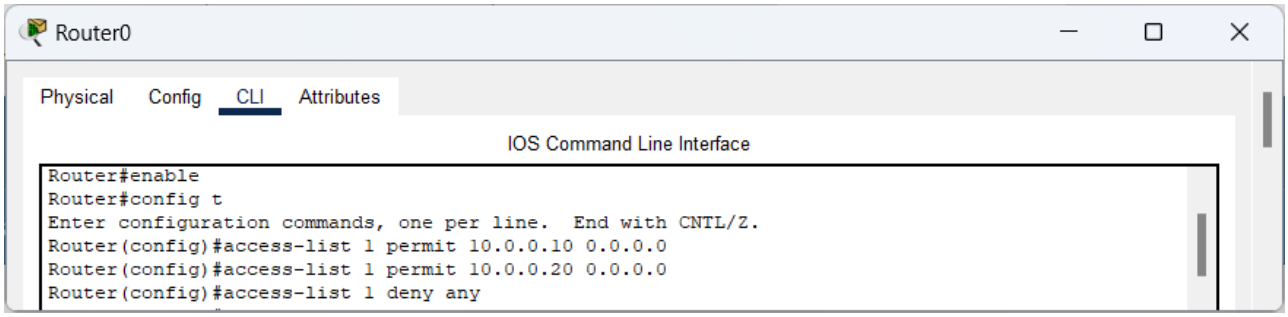


STEP 4: IP ROUTING-CONFIGURING STATIC ROUTE TO PRIVATE NETWORK ROUTER



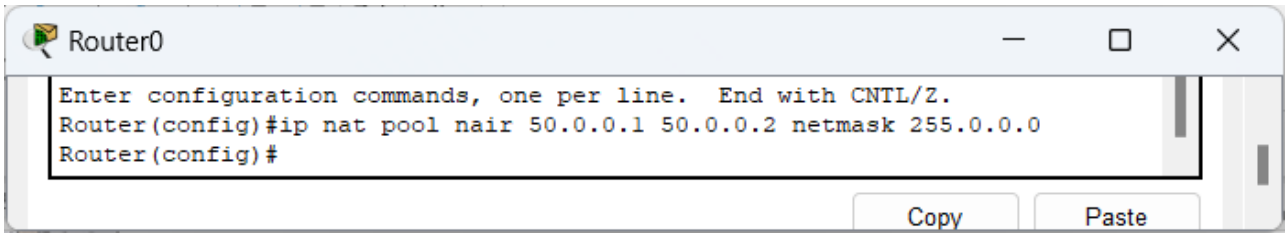
1. Create an access list of IP addresses which need translation

```
Router(config)# access-list ACL_Identifier_number permit/deny matching-parameters
```



2. Create a pool of all IP address which are available for translation

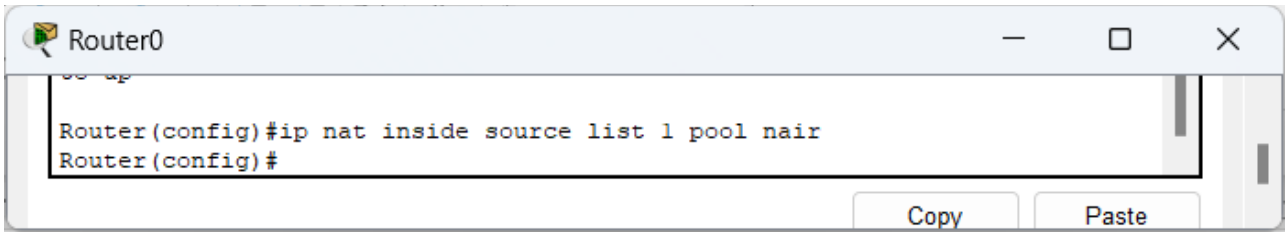
```
Router(config)#ip nat pool [Pool Name] [Start IP address] [End IP address] netmask [Subnet mask]
```



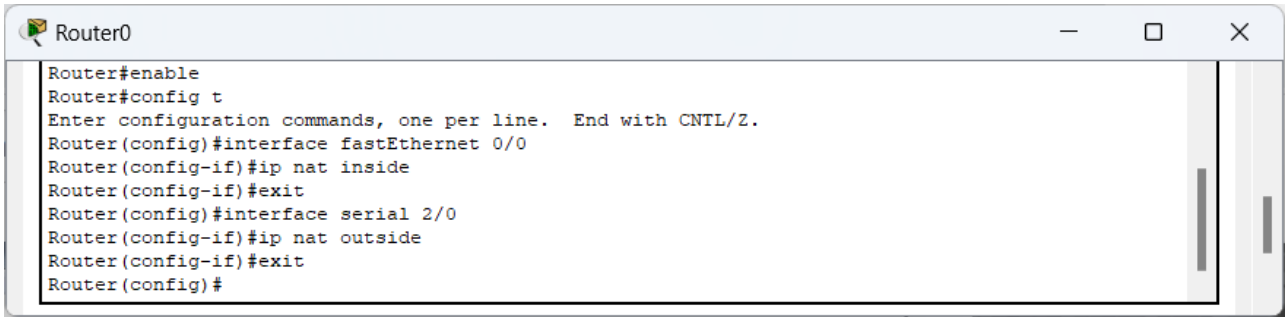
3. Map access list with pool

```
Router(config)#ip nat inside source list [access list name or number] pool [pool name]
```

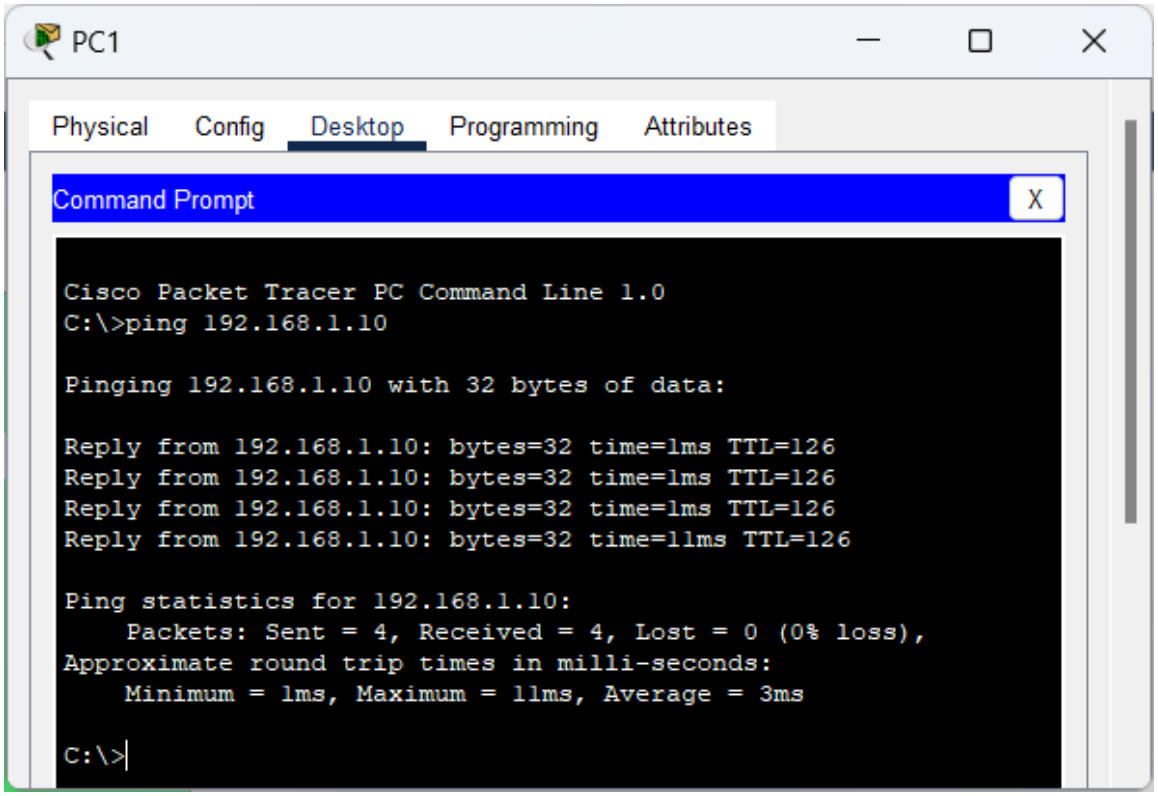
```
Router(config)#ip nat inside source list 1 pool nair
```

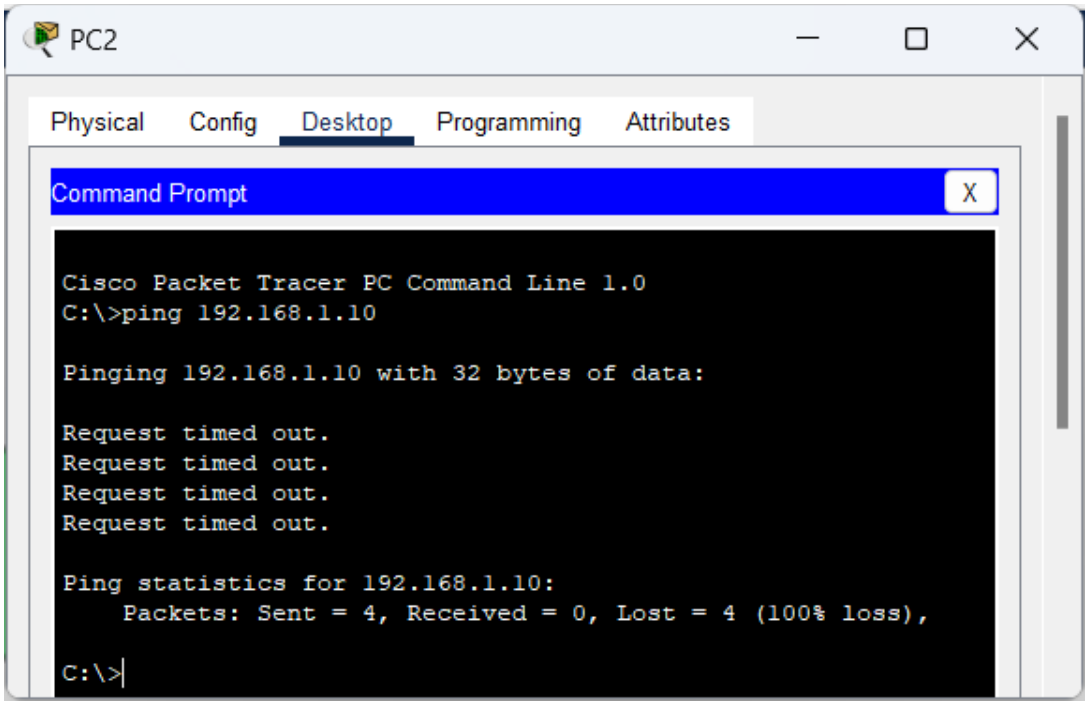


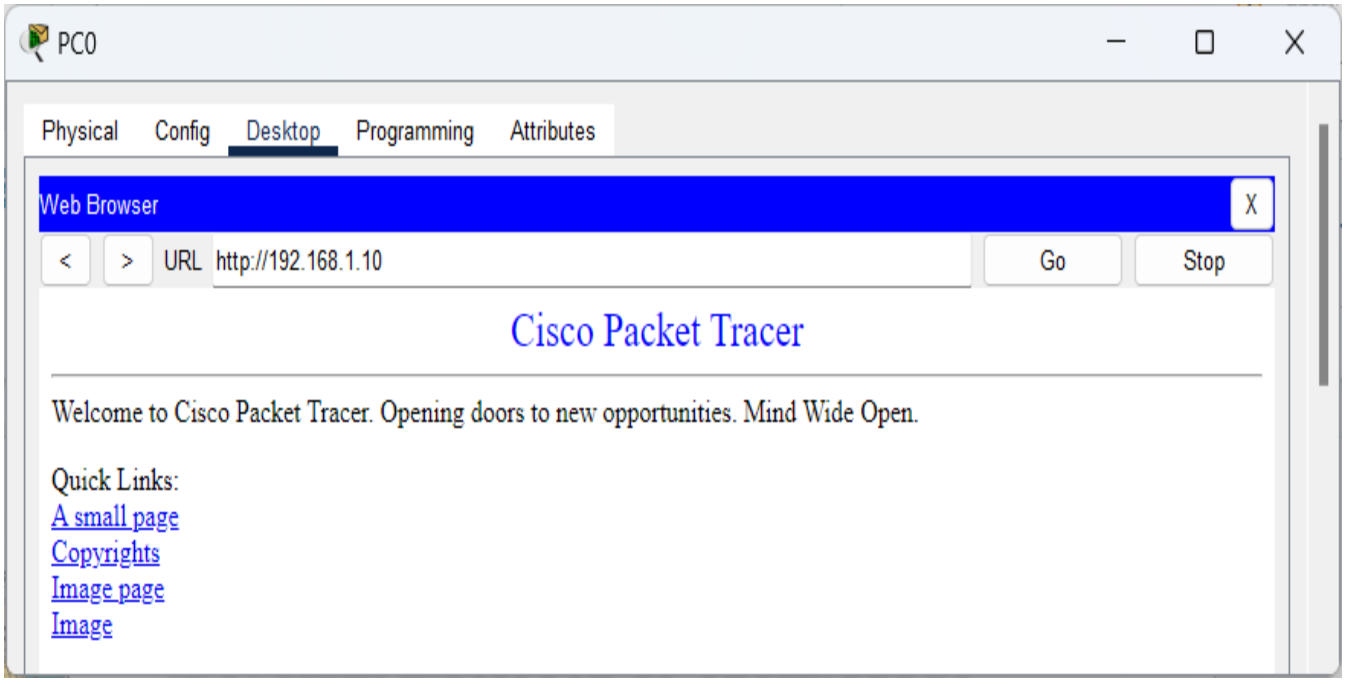
4. Define inside and outside interfaces

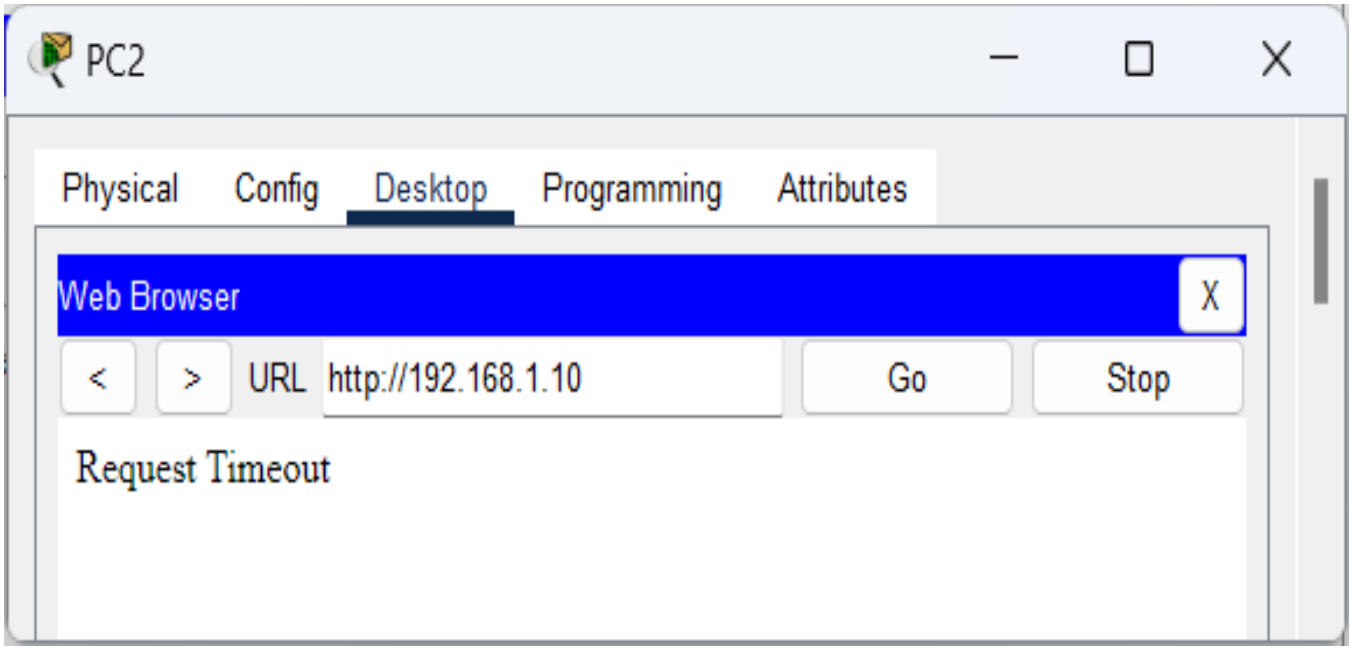


STEP 6: DATA TRANSMISSION




PC2
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10
Pinging 192.168.1.10 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.1.10:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>


PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
X
<
>
URL
http://192.168.1.10
Go
Stop
Cisco Packet Tracer
Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
Quick Links:
A small page
Copyrights
Image page
Image



OUTPUT:

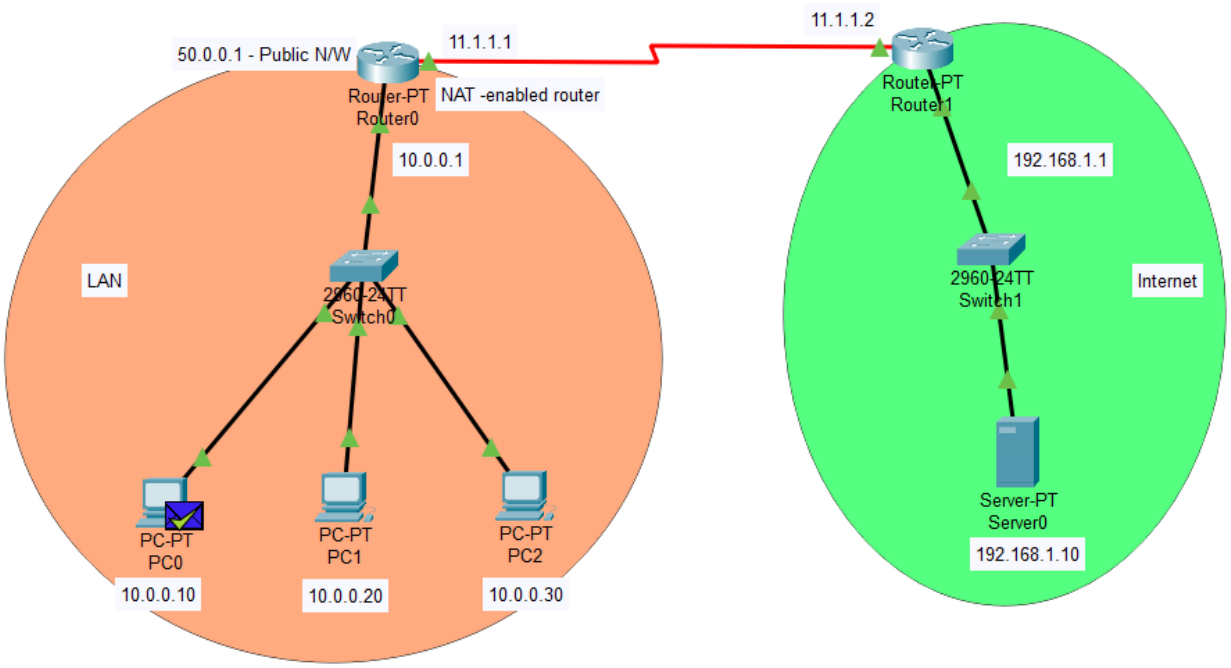


Fig: Simulation output from PC0 to Server

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Router0	ICMP
	0.003	Router0	Router1	ICMP
	0.004	Router1	Switch1	ICMP
	0.005	Switch1	Server0	ICMP
	0.006	Server0	Switch1	ICMP
	0.007	Switch1	Router1	ICMP
	0.008	Router1	Router0	ICMP
	0.009	Router0	Switch0	ICMP
	0.010	Switch0	PC0	ICMP

Reset Simulation | Constant Delay | Captured to: 0.010 s

Play Controls

Event List Filters - Visible Events
ICMP

Edit Filters | Show All/None

PDU Information at Device: Router0

OSI Model | Inbound PDU Details | Outbound PDU Details

At Device: Router0
Source: PC0
Destination: Server0

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer 3: IP Header Src. IP: 10.0.0.10, Dest. IP: 192.168.1.10 ICMP Message Type: 8	Layer 3: IP Header Src. IP: 50.0.0.2, Dest. IP: 192.168.1.10 ICMP Message Type: 8
Layer 2: Ethernet II Header 0001.C76C.3E78 >> 0010.116A.AD61	Layer 2: HDLC Frame HDLC
Layer 1: Port FastEthernet0/0	Layer 1: Port(s): Serial2/0

1. The routing table finds a routing entry to the destination IP address.
2. The device decrements the TTL on the packet

Challenge Me | << Previous Layer | Next Layer >>

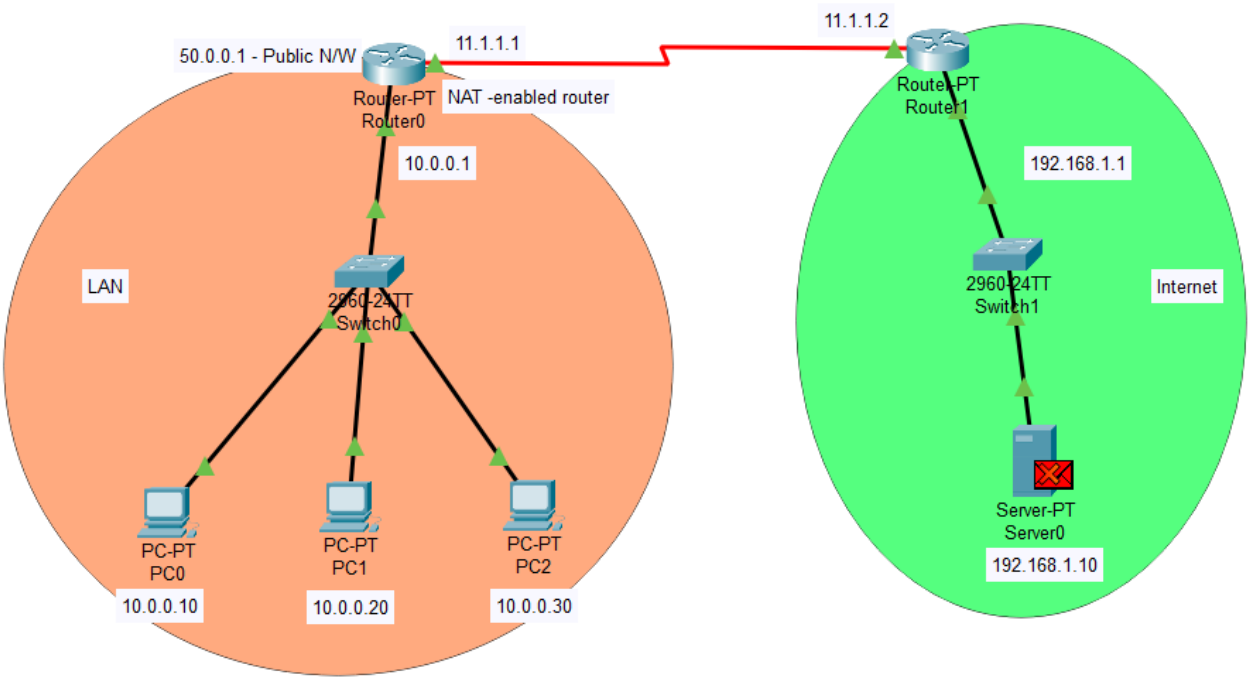


Fig: Simulation output from PC2 to Server