EXERCISE-6: NAT CONFIGURATION

AIM:

To configure the Network Address Translation on Cisco Packet Tracer.

Ex. 6A: Static NAT CONFIGURATION

Components:

Components/Devices	Required No's
PC's	3
Server	1
Copper Straight through cable	6
Serial Cable (DCE)	1
Routers	2
Switches	2

Addressing Table:

Device	Interface	IP address	Subnet Mask	Gateway
PC0	Fa0/0	20.20.20.1	255.0.0.0	20.20.20.0
PC1	Fa0/0	20.20.20.2	255.0.0.0	20.20.20.0
Router 0	FastEthernet0/0	20.20.20.0	255.0.0.0	
PC2	Fa0/0	10.10.10.1	255.0.0.0	10.10.10.0
Server-PT	Fa0/0	10.10.10.2	255.0.0.0	10.10.10.0
Router 1	FastEthernet0/0	10.10.10.0	255.0.0.0	

Procedure:

Step 1: Drag and drop the required components and connect them using the appropriate cables as shown in the figure.
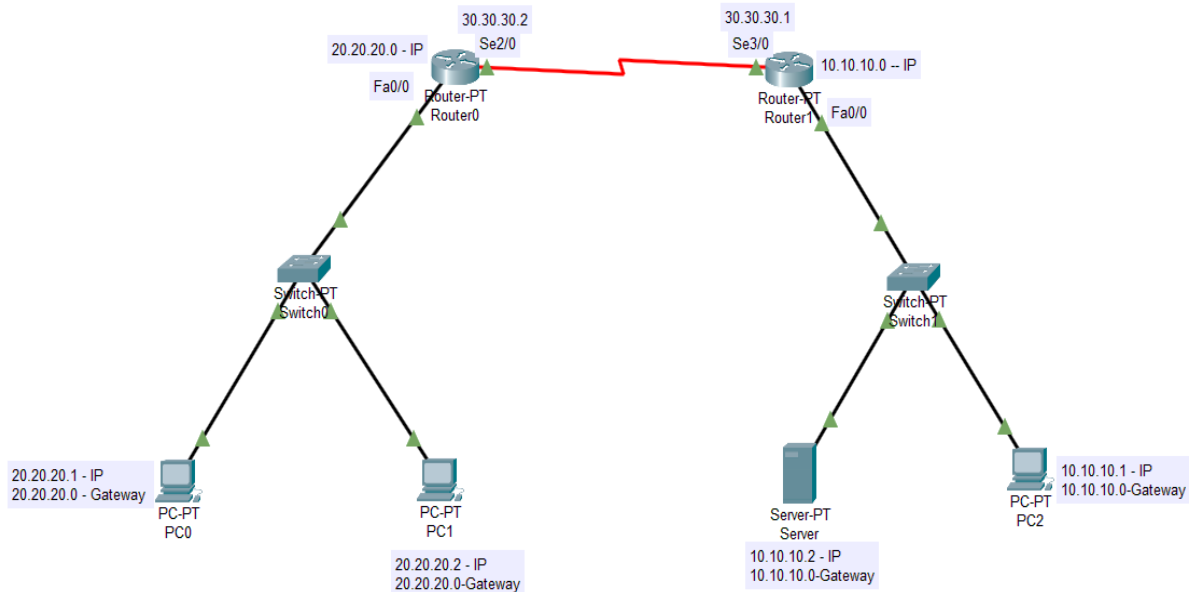
Step 2: Assign the IP address, subnet mask and Gateway for all the PC's and Server as per the addressing table.

Step 3: Connect the two routers using the serial DCE cable.

Step 4: Open Router1 and click on "config" tab and go to FastEthernet0/0 to assign the IP address and subnet mask, Serial port Se3/0 addresses.

Step 5: Repeat the same procedure for Router0 as well.

**Step 6:** Click on Router1, go to CLI tab and type the following commands to configure the NAT (static).


```
Router(config-if)#exit
Router(config)#ip nat inside source static 10.10.10.1 30.30.30.1
Router(config)#ip nat inside source static 10.10.10.2 30.30.30.1
Router(config)#int Fa0/0
Router(config-if)#ip nat inside
Router(config-if)#int s3/0
Router(config-if)#ip nat outside
Router(config-if)#exit
```
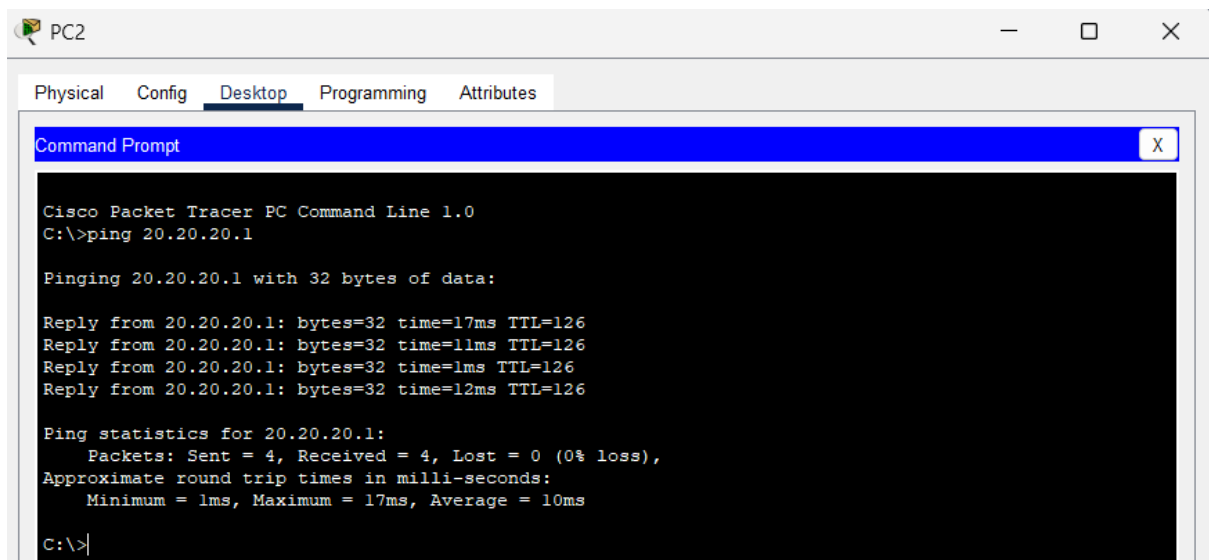
Step 7: In Router1, go to config tab and click the Static menu and type the following

IP address: 20.0.0.0 → Subnet mask: 255.0.0.0 → Next hop: 30.30.30.2 → Add
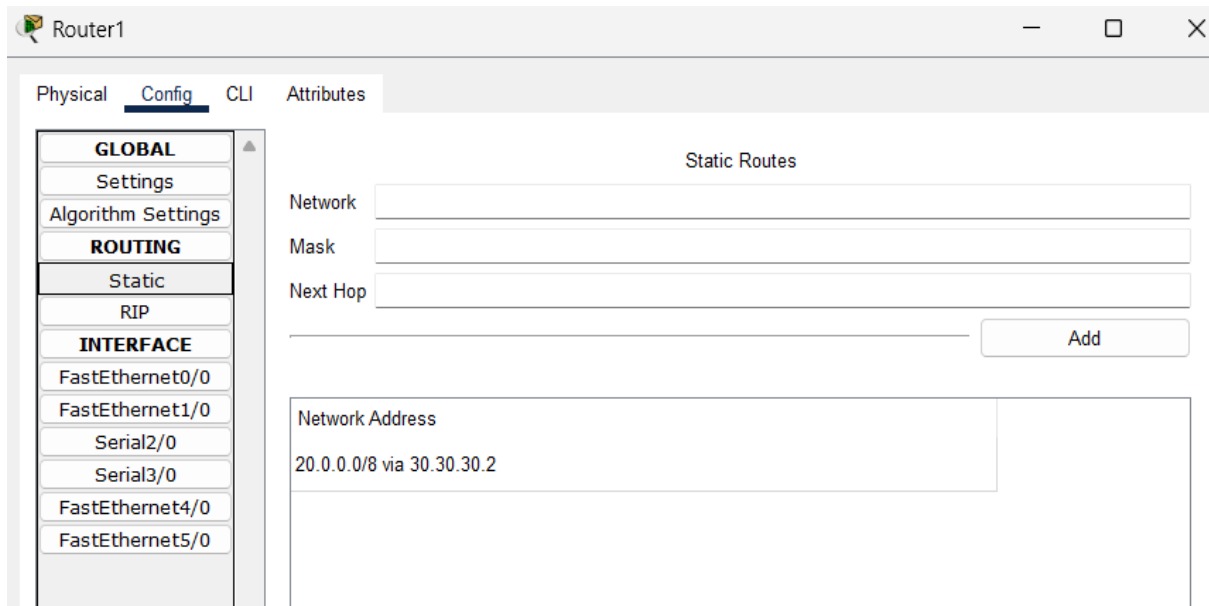
Step 8: After the static configuration of NAT routing, check the connectivity between the Private (PC2 or Server) and public network (PC0 or PC1) devices using ping command.

Public network device could not communicate to any private network.

Instead, Public network device can communicate to the NAT router.

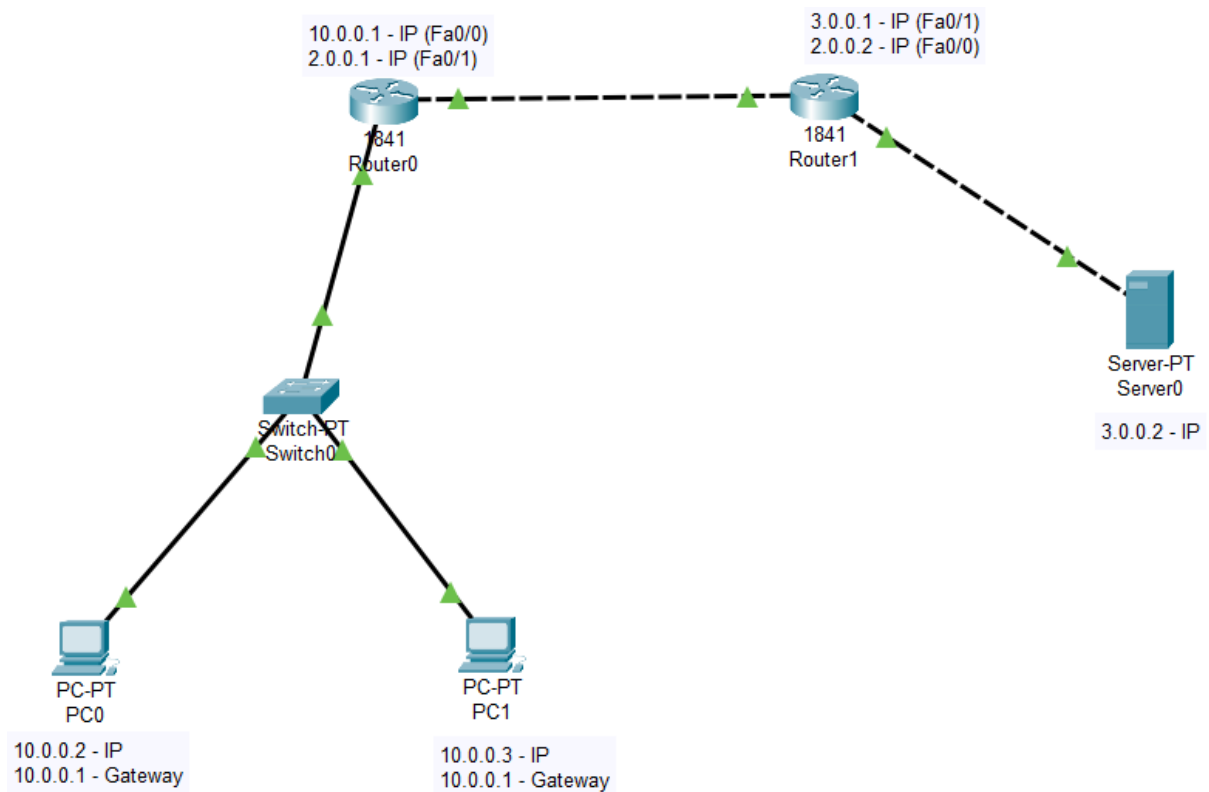**Step 9:** check the connectivity between the Private (PC2 or Server) and public network (PC0 or PC1) devices using packet simulation method.

Step 10: To view the NAT table, click on the inspect icon 🔍 and go to the Router1 and select the NAT table.

10.10.10.0 -- IP

Router-PT
Router1   Fa0/0

NAT Table for Router1

Protocol	Inside Global	Inside Local	Outside Local	Outside Global
icmp	30.30.30.1:14	10.10.10.1:14	20.20.20.2:14	20.20.20.2:14
---	30.30.30.1	10.10.10.1	---	---

6B: Dynamic NAT CONFIGURATION

10.0.0.1 - IP (Fa0/0)
2.0.0.1 - IP (Fa0/1)

3.0.0.1 - IP (Fa0/1)
2.0.0.2 - IP (Fa0/0)

1841
Router0

1841
Router1

Server-PT
Server0

3.0.0.2 - IP

Switch-PT
Switch0

PC-PT
PC0

PC-PT
PC1

10.0.0.2 - IP
10.0.0.1 - Gateway

10.0.0.3 - IP
10.0.0.1 - Gateway
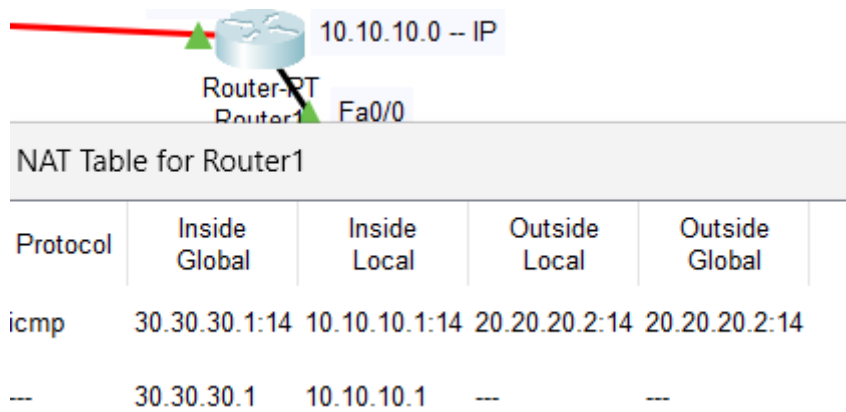
Components:

Components/Devices	Required No's
PC's	2
Server	1
Copper Straight through cable	3
Serial Cable (DCE)	1
Routers	2
Switches	2

Addressing Table:

Device	Interface	IP address	Subnet Mask	Gateway
PC0	Fa0/0	10.0.0.2	255.0.0.0	10.0.0.1
PC1	Fa0/0	10.0.0.3	255.0.0.0	10.0.0.1
Router 0	FastEthernet0/0	10.0.0.1	255.0.0.0	
Router 0	FastEthernet0/1	2.0.0.1	255.0.0.0	
Server-PT	Fa0/0	3.0.0.2	255.0.0.0	
Router 1	FastEthernet0/0	2.0.0.1	255.0.0.0	
Router 1	FastEthernet0/1	3.0.0.1	255.0.0.0	

Procedure:

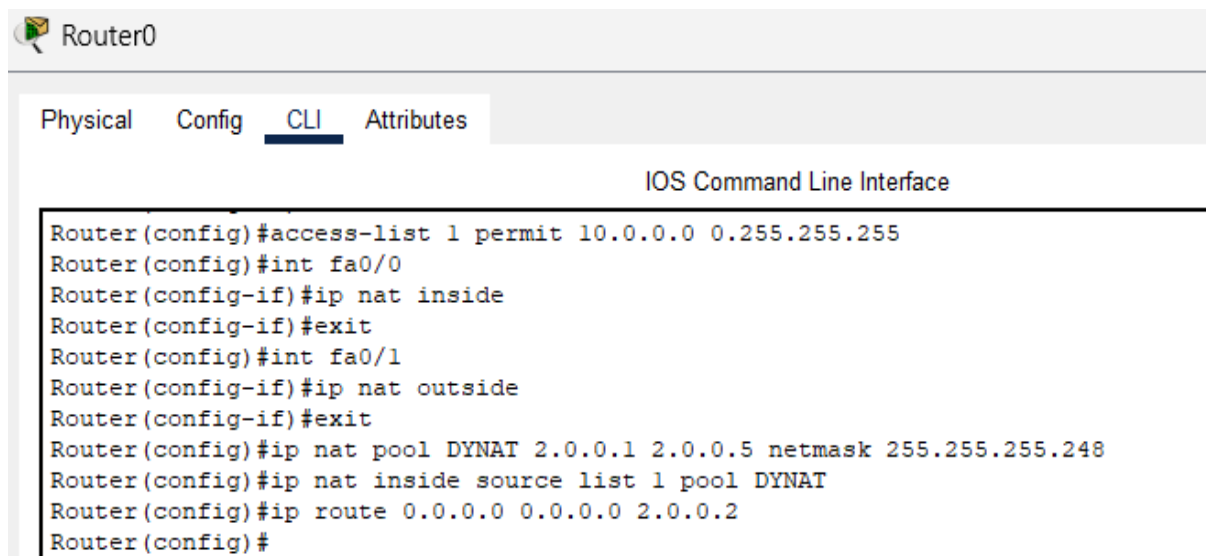**Step 1**: Draw the network topology Diagram using cisco packet tracer software. There are two routers.

Router R0(Home Router)

Router R1(ISP Router)

Step 2: Assign the IP Address on HOME ROUTER R0 and ISP ROUTER R1 as per the addressing table.

Step 3: Dynamic NAT configuration on HOME ROUTER R0 and assign the address pool.

Router0

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router(config)#access-list 1 permit 10.0.0.0 0.255.255.255
Router(config)#int fa0/0
Router(config-if)#ip nat inside
Router(config-if)#exit
Router(config)#int fa0/1
Router(config-if)#ip nat outside
Router(config-if)#exit
Router(config)#ip nat pool DYNAT 2.0.0.1 2.0.0.5 netmask 255.255.255.248
Router(config)#ip nat inside source list 1 pool DYNAT
Router(config)#ip route 0.0.0.0 0.0.0.0 2.0.0.2
Router(config)#
```

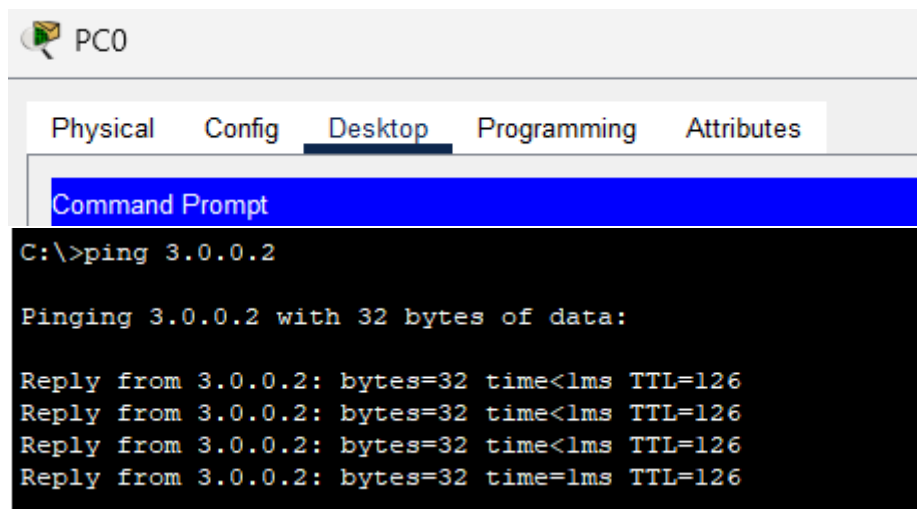**Step 4**: Route Configuration on Home Router and ISP Router.

First Do routing configuration on R0 Router:

R0(config)#ip route 0.0.0.0 0.0.0.0 2.0.0.2

Then Configure Routing on Router R1

R1(config)#ip route 0.0.0.0 0.0.0.0 2.0.0.1

Step 5: Now Check NAT configuration using ping command
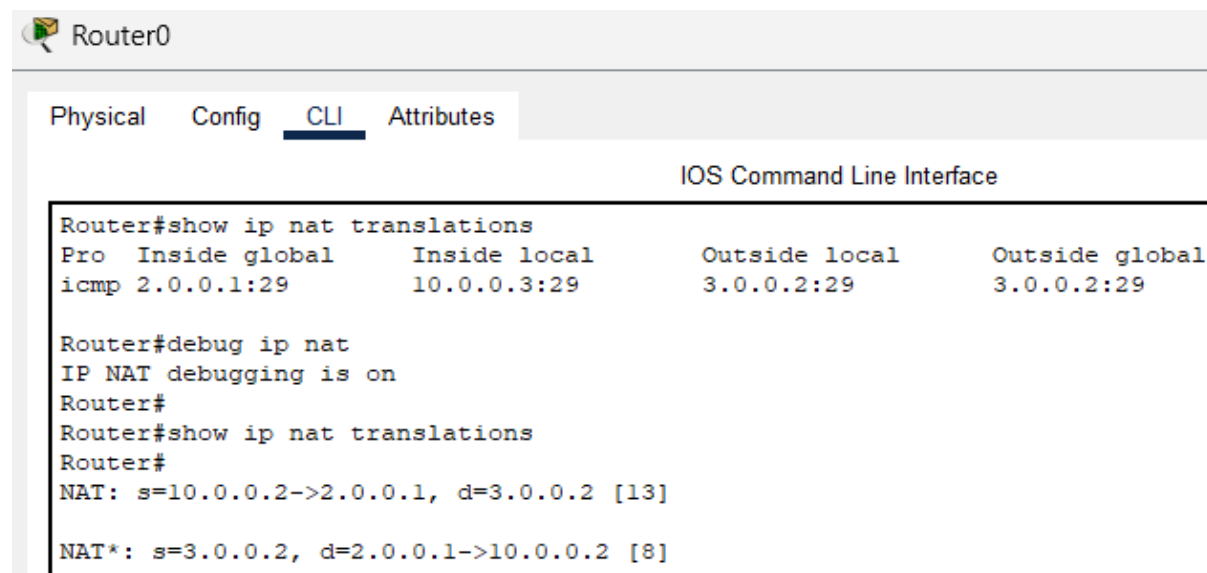
Just when Ping Run type the below command.

This command will help to see the translation process in Router0.

Result:

The implementation of NAT configuration is done successfully using Cisco Packet tracer.