



Experiment No. 9
Perform to simulate NAT on the router using Cisco packet tracer/GNS3
Date of Performance:
Date of Submission:
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Roll No. 01



Experiment 9

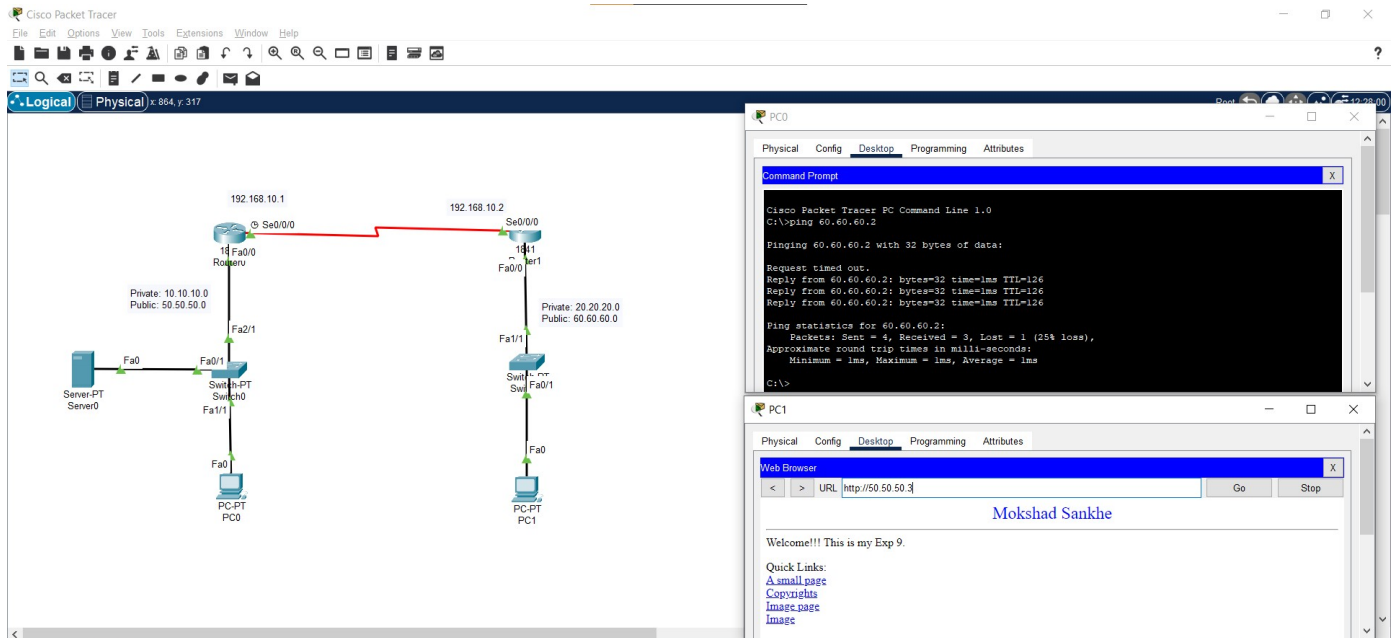
Aim: To configure and verify Static NAT translation

Theory:

Network address translation (NAT) is a method of mapping an IP address space into another by modifying network address information in the IP header of packets while they are in transit across a traffic routing device. The technique was originally used to bypass the need to assign a new address to every host when a network was moved, or when the upstream Internet service provider was replaced, but could not route the networks address space. Create a network topology as shown below in Cisco packet tracer.

Output:

Main:



PC IPv4 Configuration:

The screenshot shows the configuration window for PC0 in Cisco Packet Tracer. The 'Desktop' tab is selected, and the 'IP Configuration' section is expanded. The 'Interface' is set to 'FastEthernet0'. The 'IP Configuration' section shows the following settings:

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	10.10.10.2
Subnet Mask	255.0.0.0
Default Gateway	10.10.10.1
DNS Server	0.0.0.0



PC1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 20.20.20.2

Subnet Mask 255.0.0.0

Default Gateway 20.20.20.1

DNS Server 0.0.0.0

PC1 IPv4 Configuration:Router0 CLI Configuration:

Router0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 10.10.10.1 255.0.0.0
Router(config-if)#ip address 10.10.10.1 255.0.0.0
Router(config-if)#no shutdown
Router(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

Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown
Router(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

Router(config-if)#exit
Router(config)#ip nat inside source static 10.10.10.2 50.50.50.2
Router(config)#ip nat inside source static 10.10.10.3 50.50.50.3
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 inside
Router(config-if)#exit
Router(config)#int fal/1
%Invalid interface type and number
Router(config)#int fal/1
%Invalid interface type and number
Router(config)#int serial 0/0/0
Router(config-if)#ip nat outside
Router(config-if)#exit
Router(config)#ip route 60.60.60.0 255.0.0.0 192.168.10.2
%Inconsistent address and mask
Router(config)#ip route 60.0.0.0 255.0.0.0 192.168.10.2
Router(config)#exit
```



Router1 CLI Configuration:

```
Router1
Physical Config CLI Attributes
IOS Command Line Interface

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 20.20.20.1 255.0.0.0
Router(config-if)#no shutdown
Router(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

Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#ip address 192.168.10.2 255.255.255.0
Router(config-if)#no shutdown
Router(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

Router(config-if)#exit
Router(config)#ip nat inside source static 20.20.20.2 60.60.60.2
Router(config)#int fa0/0
Router(config-if)#ip nat inside
Router(config-if)#exit
Router(config)#int serial /00/0
      ^
% Invalid input detected at '^' marker.

Router(config)#int serial 0/0/0
Router(config-if)#ip nat outside
Router(config-if)#exit
Router(config)#ip route 50.0.0.0 255.0.0.0 192.168.10.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
```

Server Configuration:

Server0

Physical Config Services Desktop Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 10.10.10.3

Subnet Mask: 255.0.0.0

Default Gateway: 10.10.10.1

DNS Server: 0.0.0.0



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Department of Artificial Intelligence & Data Science

Server HTTP Service:

Server0

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

HTTP

☒ On ☐ Off

HTTPS

☒ On ☐ Off

File Manager

	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	helloworld.html	(edit)	(delete)
4	image.html	(edit)	(delete)
5	index.html	(edit)	(delete)

Server0

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

File Name: index.html

```
<html>
<center><font size='+2' color='blue'>Mokshad Sankhe</font></center>
<hr>Welcome!!! This is my Exp 9.

<p>Quick Links:
<br><a href='helloworld.html'>A small page</a>
<br><a href='copyrights.html'>Copyrights</a>
<br><a href='image.html'>Image page</a>
<br><a href='cscoptlogo177x111.jpg'>Image</a>
</html>
```

Conclusion:

Simulating NAT using Cisco Packet Tracer and GNS3 provides invaluable practical experience for network engineers and students. These tools offer a realistic environment to study and apply NAT configurations, ensuring that users can design, configure, and troubleshoot NAT implementations effectively. Mastering NAT in these simulated environments enhances one's ability to manage and secure real-world networks, providing a strong foundation for efficient and scalable network design.