Data Communications Laboratory
Configuring Network Address Translation (NAT)

Your Name: Khalid Bakhshi
Your Student ID: 46392459

Group details:
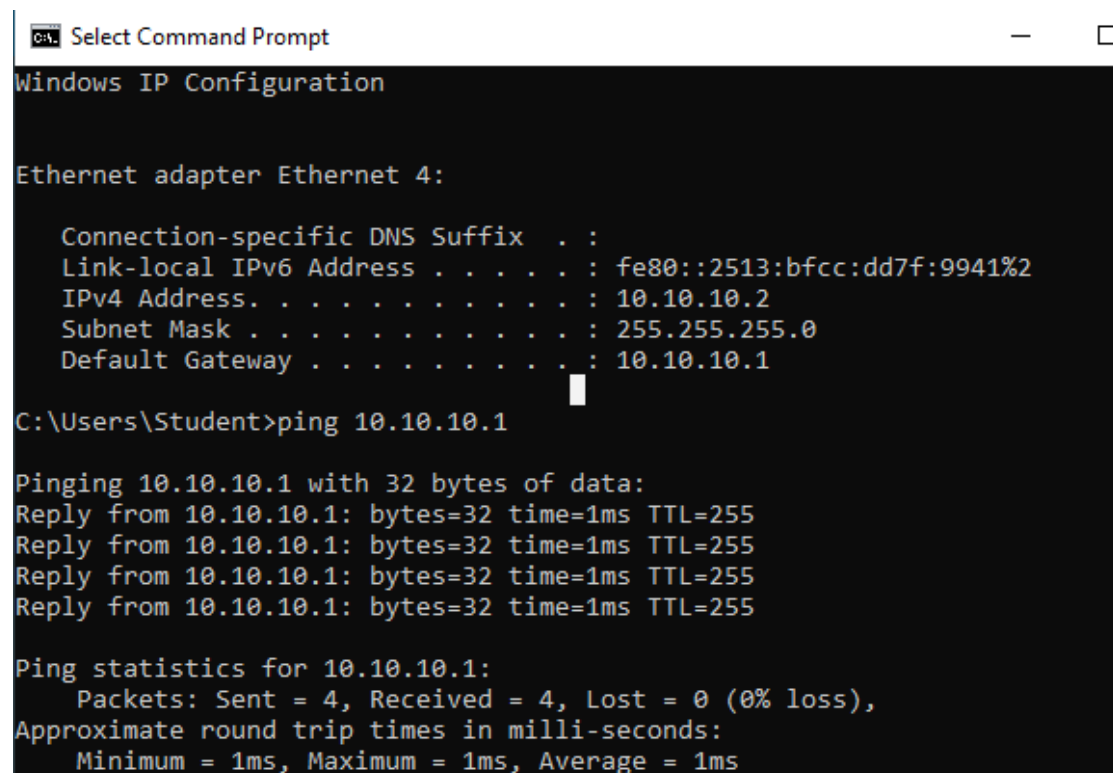
Gateway Router student name	Khalid Desk 16
ISP Router student name	Desk 18
Third student name (if applicable)	

Documentation Task 1.

From the attached hosts, ping the Fast Ethernet on 10.10.10.1 interface of the default gateway router.

1. Was the ping from both hosts successful?

ANS: Yes

If your answer is no, troubleshoot the router and host configurations to find the error. You must be able to ping the Gateway router before proceeding.

Documentation Task 2.

1. Is the static route in the ISP routers routing table? Hint: `ISP# show ip route`

ANS: Yes

2. Why use a static route at all?

ANS: Static routes are to strictly control where the data goes on the network

Backup route

If the route is not in the routing table, check that GigabitEthernet 0/0/1 is up (does not have "shutdown" listed in its configuration)

Documentation Task 3.

1. Is the static route in the Gateway routers routing table?

   Hint: `Gateway# show ip route`

ANS: Yes

Now try to ping from one of the workstations to the ISPs GigabitEthernet 0/0/1 interface address.

```
Gateway#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Gateway(config)# ip route 0.0.0.0 0.0.0.0 200.2.2.17
Gateway(config)#end
Gateway#
*Jun  5 06:20:02.981: %SYS-5-CONFIG_I: Configured from console by console
Gateway#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is 200.2.2.17 to network 0.0.0.0

S*    0.0.0.0/0 [1/0] via 200.2.2.17
      10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C        10.10.10.0/24 is directly connected, GigabitEthernet0/0/0
L        10.10.10.1/32 is directly connected, GigabitEthernet0/0/0
      200.2.2.0/24 is variably subnetted, 2 subnets, 2 masks
C        200.2.2.16/30 is directly connected, GigabitEthernet0/0/1
L        200.2.2.18/32 is directly connected, GigabitEthernet0/0/1
Gateway#
```

2. Was the ping successful?

ANS: Yes

3. Why or why not?

ANS: It went through static network and we made the static route.

Documentation Task 4.

Try to ping the ISP GigabitEthernet 0/0/1 IP address (172.16.1.1) again.

1. Was this ping successful?

ANS: Yes

```
C:\Users\Student>ping 172.16.1.1

Pinging 172.16.1.1 with 32 bytes of data:
Reply from 172.16.1.1: bytes=32 time=1ms TTL=254
Reply from 172.16.1.1: bytes=32 time=1ms TTL=254
Reply from 172.16.1.1: bytes=32 time=1ms TTL=254
Reply from 172.16.1.1: bytes=32 time=1ms TTL=254

Ping statistics for 172.16.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms
```

If this does not work, troubleshoot your configuration or ask the TA for help.

For the below questions, look at the output of the following command:

```
Gateway# show ip nat translations
```

2. What is the translation of the inside local host addresses?

ANS:10.10.10.2

3. What is the translation of the outside local host addresses?

ANS: 0

```
Gateway(config)#exit
Gateway#
*Jun  5 06:38:01.915: %SYS-5-CONFIG_I: Configured from console by console
Gateway#show ip nat translations
Pro  Inside global      Inside local       Outside local      Outside global
---  199.99.9.40        10.10.10.2         ---                ---
Total number of translations: 1
```