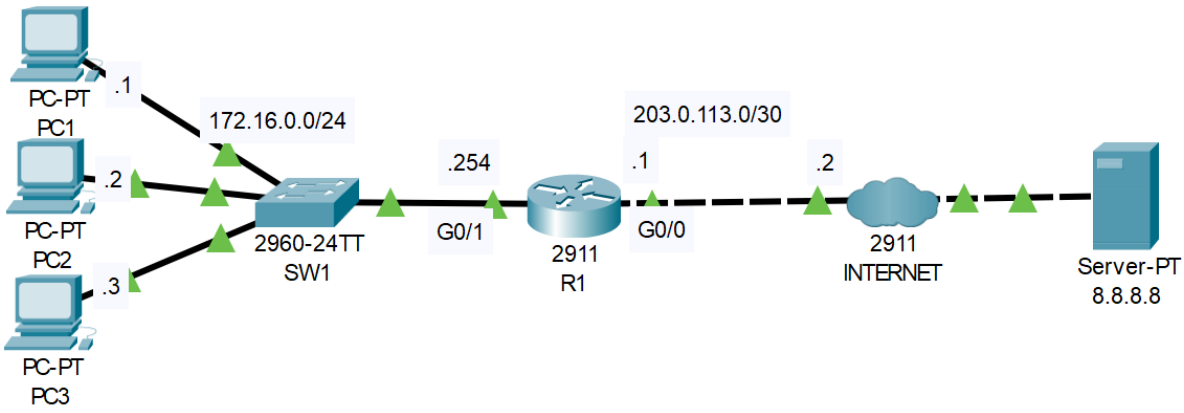
Lab-Report

Topic: Dynamic NAT

Source: Jeremy's IT Lab - Udemy

Student: Mono




1. Configure dynamic NAT on R1.
   > Configure the appropriate inside/outside interfaces
   > Translate all traffic from 172.16.0.0/24
   > Create a pool of 100.0.0.1 to 100.0.0.2 from the 100.0.0.0/24 subnet

2. Ping google.com from PC1 and PC2. Then, ping it from PC3.
   What happens to PC3's ping?

3. Clear the NAT translations and remove the current NAT configuration.
   Sw itch the configuration to PAT using R1's public IP address.

4. Ping google.com from each PC. Do the pings w ork?
   Examine the NAT translations on R1.

1.

```
R1>en
R1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int g0/0
R1(config-if)#ip nat outside
R1(config-if)#int g0/1
R1(config-if)#ip nat inside
R1(config-if)#exit
R1(config)#
```

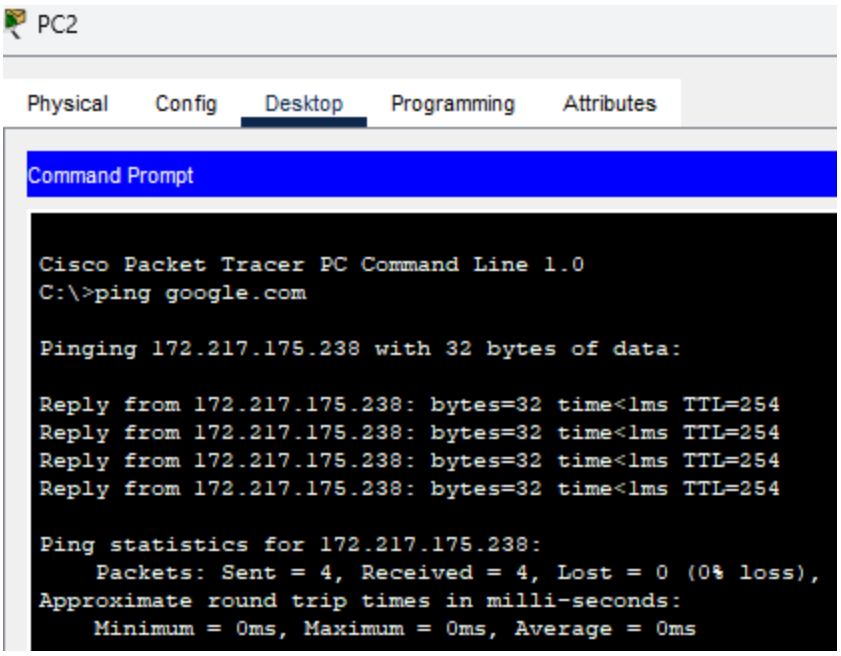
```
R1(config)#access-list ?
  <1-99>     IP standard access list
  <100-199>  IP extended access list
R1(config)#access-list 1 permit 172.16.0.0 0.0.0.255
R1(config)#
R1(config)#ip nat ?
  inside   Inside address translation
  outside  Outside address translation
  pool     Define pool of addresses
R1(config)#ip nat pool 100.0.0.1 100.0.0.2 ?
  A.B.C.D  End IP address
R1(config)#ip nat pool POOL1 100.0.0.1 100.0.0.2 ?
  netmask  Specify the network mask
R1(config)#ip nat pool POOL1 100.0.0.1 100.0.0.2 netmask 255.255.255.0
R1(config)#
R1(config)#ip nat inside source list 1 pool POOL1
R1(config)#

R1(config)#do show run | include nat
 ip nat outside
 ip nat inside
ip nat pool POOL1 100.0.0.1 100.0.0.2 netmask 255.255.255.0
ip nat inside source list 1 pool POOL1
R1(config)#
R1(config)#show run | include list

R1(config)#do show run | include list
ip nat inside source list 1 pool POOL1
access-list 1 permit 172.16.0.0 0.0.0.255
R1(config)#
```

2.

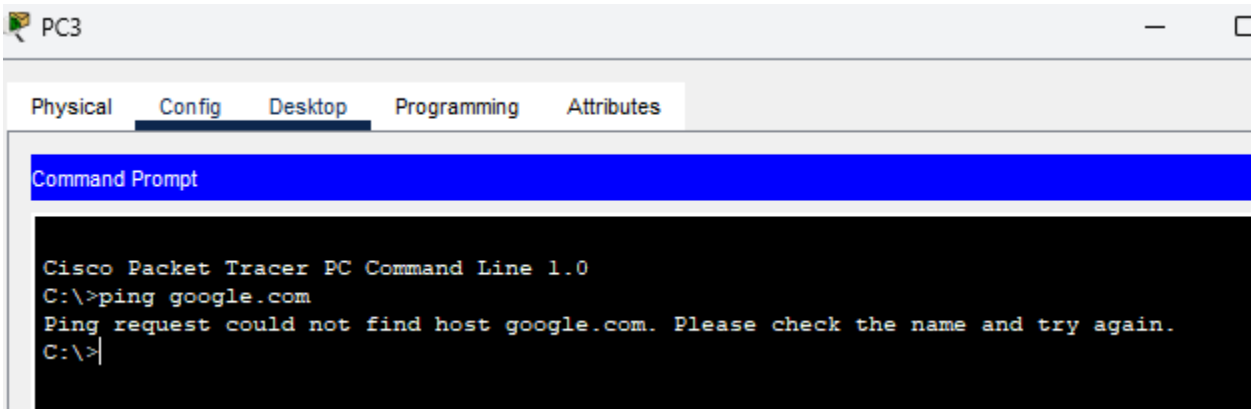
PC1

```
C:\>ping google.com

Pinging 172.217.175.238 with 32 bytes of data:

Reply from 172.217.175.238: bytes=32 time<1ms TTL=254
Reply from 172.217.175.238: bytes=32 time<1ms TTL=254
Reply from 172.217.175.238: bytes=32 time<1ms TTL=254
Reply from 172.217.175.238: bytes=32 time<1ms TTL=254

Ping statistics for 172.217.175.238:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC2




PC3




Could not ping google.com from PC3 because PC1 and PC2 already used the public IP addresses in the pool! This means, if I clear the Nat trans and ping google.com from PC3, it will work! I tested and worked!

3.

```
R1#show ip nat trans
Pro  Inside global     Inside local       Outside local      Outside global
udp 100.0.0.1:1025     172.16.0.1:1025    8.8.8.8:53         8.8.8.8:53
udp 100.0.0.2:1025     172.16.0.2:1025    8.8.8.8:53         8.8.8.8:53

R1#clear ip nat trans *
R1#show ip nat trans
R1#
```

```
R1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#do show run | include ip nat
 ip nat outside
 ip nat inside
ip nat pool POOL1 100.0.0.1 100.0.0.2 netmask 255.255.255.0
ip nat inside source list 1 pool POOL1
R1(config)# no ip nat inside source list 1 pool POOL1
R1(config)#ip nat inside source list 1 pool POOL1 overload
R1(config)#
```

4. All PCs worked and could ping google.com using PAT!

```
R1#show ip nat trans
Pro  Inside global     Inside local       Outside local      Outside global
icmp 100.0.0.2:1024    172.16.0.3:5       172.217.175.238:5  172.217.175.238:1024
icmp 100.0.0.2:1025    172.16.0.3:6       172.217.175.238:6  172.217.175.238:1025
icmp 100.0.0.2:1026    172.16.0.3:7       172.217.175.238:7  172.217.175.238:1026
icmp 100.0.0.2:1027    172.16.0.3:8       172.217.175.238:8  172.217.175.238:1027
icmp 100.0.0.2:13      172.16.0.1:13      172.217.175.238:13 172.217.175.238:13
icmp 100.0.0.2:14      172.16.0.1:14      172.217.175.238:14 172.217.175.238:14
icmp 100.0.0.2:15      172.16.0.1:15      172.217.175.238:15 172.217.175.238:15
icmp 100.0.0.2:16      172.16.0.1:16      172.217.175.238:16 172.217.175.238:16
icmp 100.0.0.2:5       172.16.0.2:5       172.217.175.238:5  172.217.175.238:5
icmp 100.0.0.2:6       172.16.0.2:6       172.217.175.238:6  172.217.175.238:6
icmp 100.0.0.2:7       172.16.0.2:7       172.217.175.238:7  172.217.175.238:7
icmp 100.0.0.2:8       172.16.0.2:8       172.217.175.238:8  172.217.175.238:8
udp 100.0.0.2:1024     172.16.0.2:1026    8.8.8.8:53         8.8.8.8:53
udp 100.0.0.2:1026     172.16.0.1:1026    8.8.8.8:53         8.8.8.8:53
udp 100.0.0.2:1027     172.16.0.3:1027    8.8.8.8:53         8.8.8.8:53
```