LAB – 10

18MIS7250

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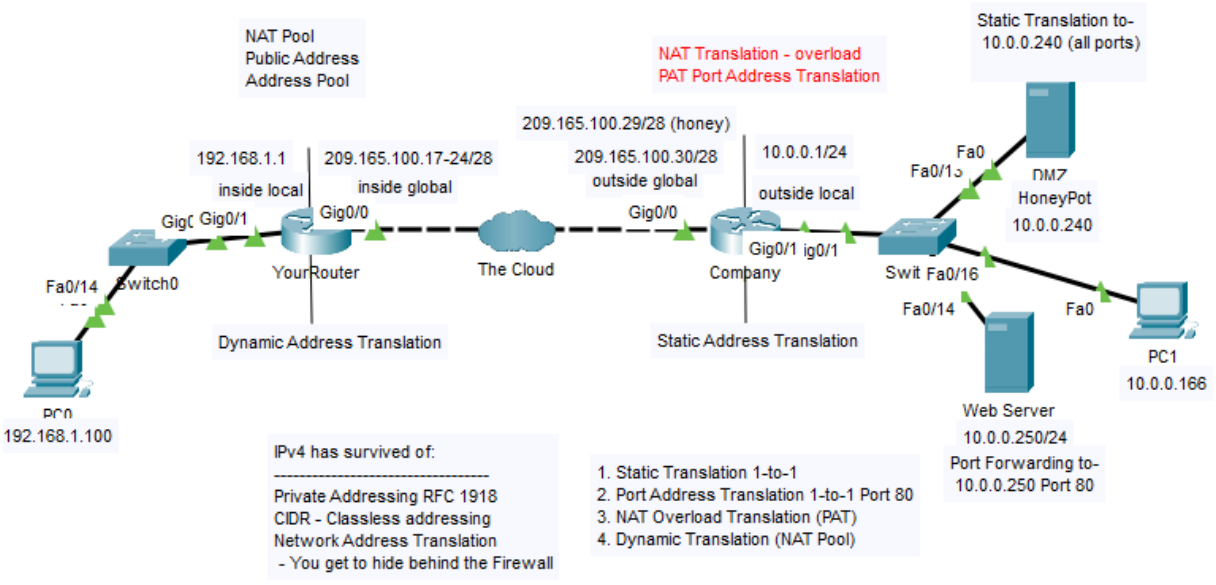
NAT – Network Address Translation

Network Address Translation (NAT) is the process where a network device, usually a firewall, assigns a public address to a computer (or group of computers) inside a private network. The main use of NAT is to limit the number of public IP addresses an organization or company must use, for both economy and security purposes.

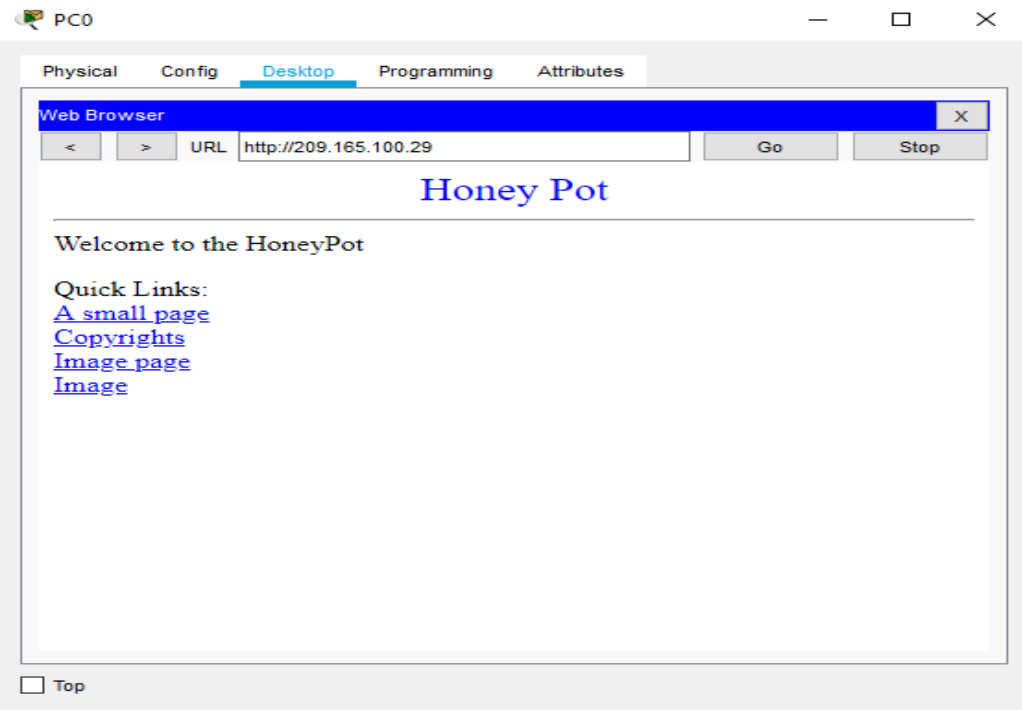


Configuring a static NAT translation from the address 209.165.100.29 to 10.0.0.240

```
company>en
company#conf t
Enter configuration commands, one per line. End with CNTL/Z.
company(config)#int g0/0
company(config-if)#ip nat out
```

```
company(config-if)#int g0/1
company(config-if)#ip nat inside
company(config-if)#ip nat inside source static 10.0.0.240 209.165.100.29
company(config)#
```

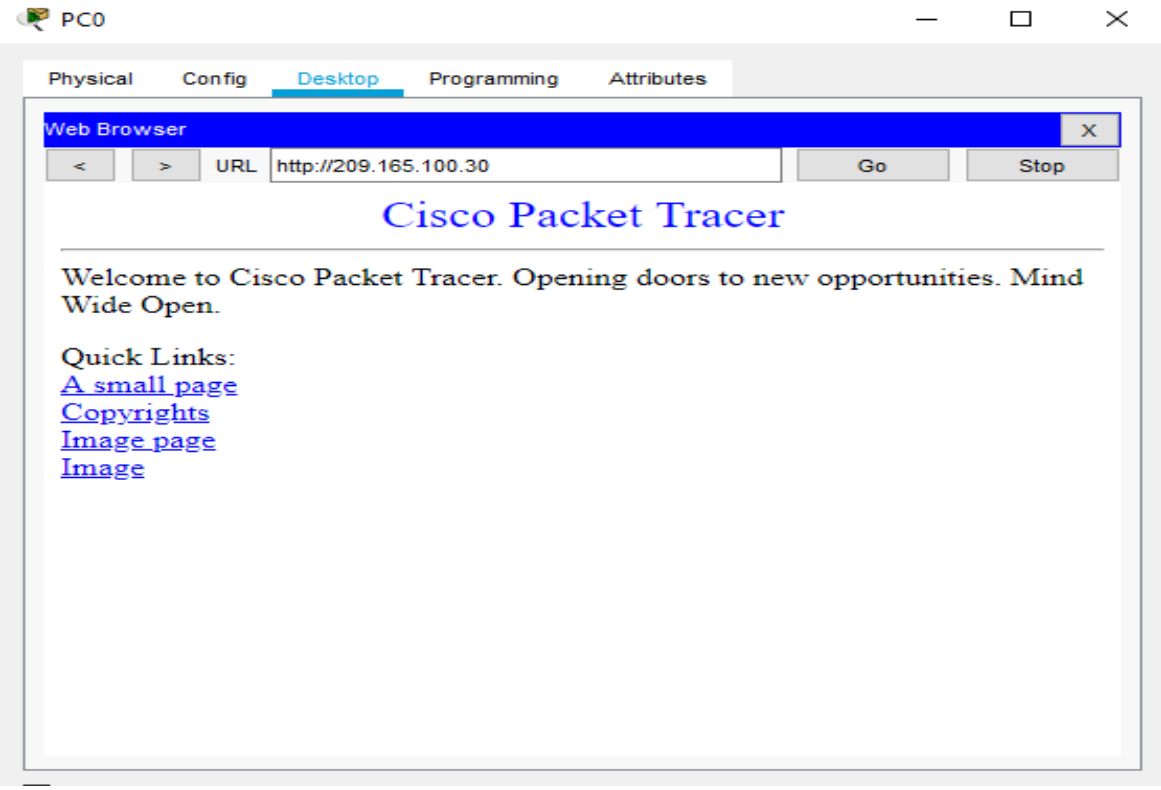
verifying it works by opening a web browser on PC0 and going to 209.165.100.29



Configuring port forwarding, from 209.165.100.30 on port 80 to 10.0.0.250 on port 80

```
company(config)#int g0/0
company(config-if)#int nat outside
company(config-if)#int g0/1
company(config-if)#ip nat inside
company(config-if)#exit
company(config)#ip nat inside source static tcp 10.0.0.250 80 209.165.100.30 80
company(config)#
```

verifying it works by opening a web browser on PC0 and going to 209.165.100.30

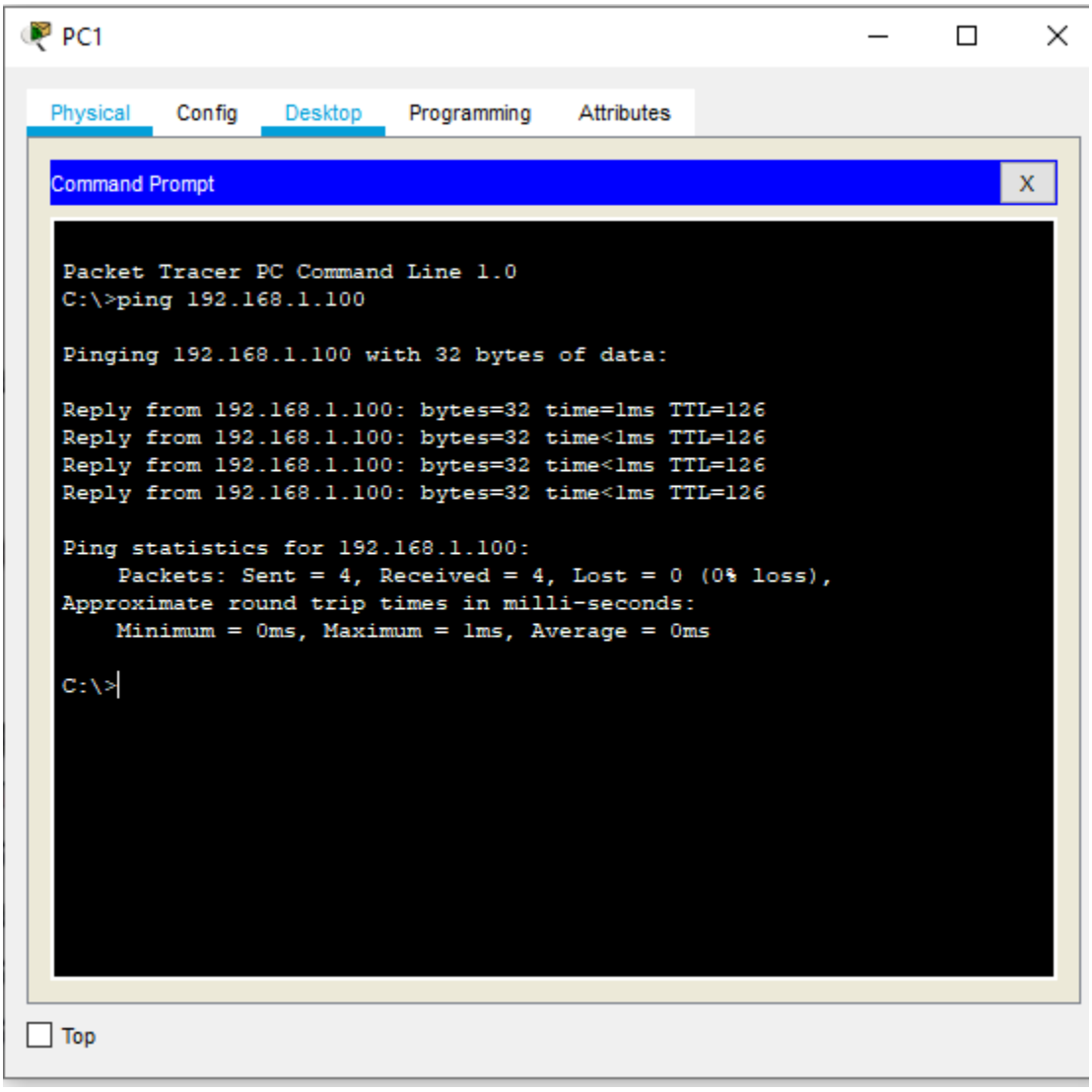


Configuring a NAT overload translation from the 10.0.0.0/24 network to interface G0/0

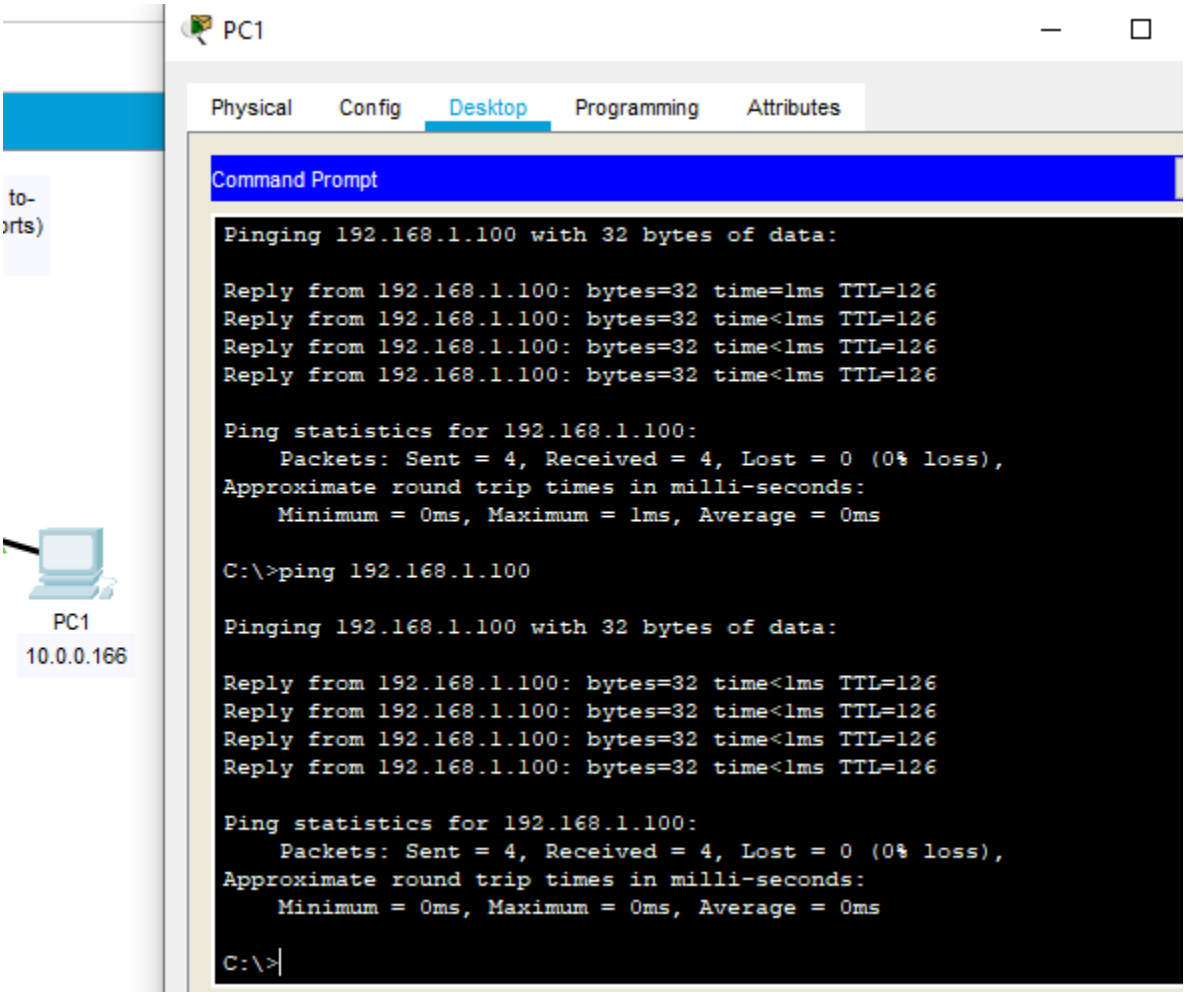
```
company(config)#access-list 10 permit 10.0.0.0 0.0.0.255
company(config)#ip nat inside source ?
list Specify access list describing local addresses
static Specify static local->global mapping
company(config)#ip nat inside source
% Incomplete command.
company(config)#ip nat inside source 10 ?
% Unrecognized command
company(config)#ip nat inside source list 10 ?
interface Specify interface for global address
pool Name pool of global addresses
company(config)#ip nat inside source list 10 interface g0/0 overload
company(config)#exit
company#
%SYS-5-CONFIG_I: Configured from console by console

company#show ip nat translation
Pro Inside global Inside local Outside local Outside global
icmp 209.165.100.30:1 10.0.0.100:1 192.168.1.100:1 192.168.1.100:1
icmp 209.165.100.30:2 10.0.0.100:2 192.168.1.100:2 192.168.1.100:2
icmp 209.165.100.30:3 10.0.0.100:3 192.168.1.100:3 192.168.1.100:3
icmp 209.165.100.30:4 10.0.0.100:4 192.168.1.100:4 192.168.1.100:4
--- 209.165.100.29 10.0.0.240 --- ---
tcp 209.165.100.29:80 10.0.0.240:80 192.168.1.100:1025 192.168.1.100:1025
tcp 209.165.100.29:80 10.0.0.240:80 192.168.1.100:1026 192.168.1.100:1026
tcp 209.165.100.30:80 10.0.0.250:80 --- ---
tcp 209.165.100.30:80 10.0.0.250:80 192.168.1.100:1027 192.168.1.100:1027
```

verifying it works by successfully pinging from PC1 to PC0. Change the IP address of PC1 to 10.0.0.166 and test again. From the command line issue the command *show ip nat translations* to verify the address and port translations



Changing ip address of PC 1 to 10.0.0.166 and checking if it's working

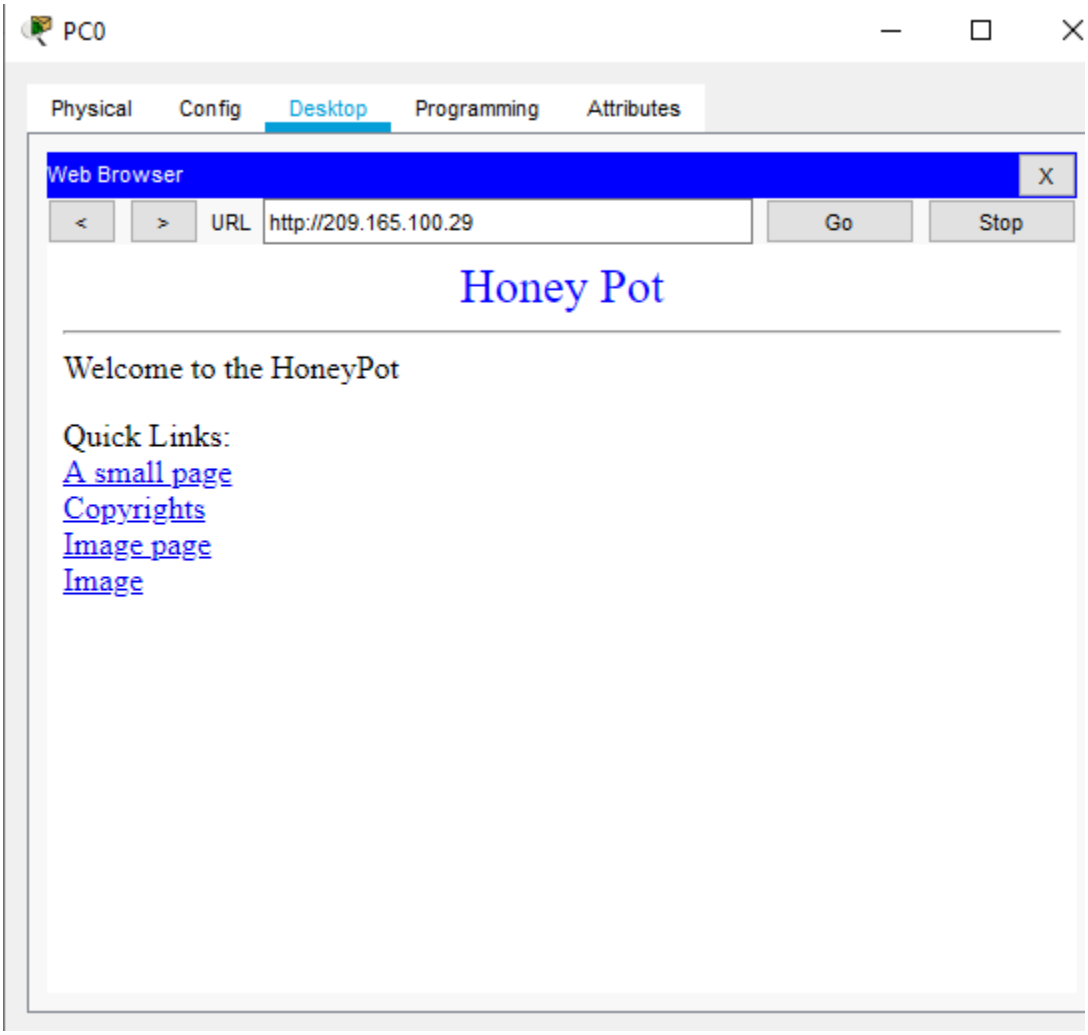


company#show ip nat translation
Pro Inside global Inside local Outside local Outside global
icmp 209.165.100.30:5 10.0.0.166:5 192.168.1.100:5 192.168.1.100:5

icmp 209.165.100.30:6 10.0.0.166:6 192.168.1.100:6 192.168.1.100:6
icmp 209.165.100.30:7 10.0.0.166:7 192.168.1.100:7 192.168.1.100:7
icmp 209.165.100.30:8 10.0.0.166:8 192.168.1.100:8 192.168.1.100:8
--- 209.165.100.29 10.0.0.240 --- ---
tcp 209.165.100.29:80 10.0.0.240:80 192.168.1.100:1025 192.168.1.100:1025
tcp 209.165.100.29:80 10.0.0.240:80 192.168.1.100:1026 192.168.1.100:1026
tcp 209.165.100.30:80 10.0.0.250:80 --- ---
tcp 209.165.100.30:80 10.0.0.250:80 192.168.1.100:1027 192.168.1.100:1027

Configure dynamic NAT translation using a NAT Pool of addresses 209.165.100.17 to 209.165.100.24, to the 192.168.1.0/24 network with overload

YourRouter#conf t
Enter configuration commands, one per line. End with CNTL/Z.
YourRouter(config)#int g0/0
YourRouter(config-if)#ip nat outside
YourRouter(config-if)#int g0/1
YourRouter(config-if)#ip nat inside
YourRouter(config-if)#
YourRouter(config-if)#access-list 1 ppermit 192.168.1.0 0.0.0.255
^
% Invalid input detected at '^' marker.
YourRouter(config-if)#access-list 1 permit 192.168.1.0 0.0.0.255
YourRouter(config)#
YourRouter(config)#ip nat MYPOOL ?
% Unrecognized command
YourRouter(config)#ip nat pool ?
WORD Pool name
YourRouter(config)#ip nat pool MYPOOL ?
A.B.C.D Start IP address
YourRouter(config)#ip nat pool MYPOOL 209.165.100.17 209.165.100.24 ?
netmask Specify the network mask
YourRouter(config)#ip nat pool MYPOOL 209.165.100.17 209.165.100.24 netmask?
netmask
YourRouter(config)#ip nat pool MYPOOL 209.165.100.17 209.165.100.24 netmask
255.255.255.240
YourRouter(config)#
YourRouter(config)#
YourRouter(config)#ip nat inside source list 1 ?
interface Specify interface for global address
pool Name pool of global addresses
YourRouter(config)#ip nat inside source list 1 pool MYPOOL ?
overload Overload an address translation
<cr>
YourRouter(config)#ip nat inside source list 1 pool MYPOOL overload
YourRouter(config)#



YourRouter#
%SYS-5-CONFIG_I: Configured from console by console

YourRouter#show ip nat translations
Pro Inside global Inside local Outside local Outside global
tcp 209.165.100.17:1028192.168.1.100:1028 209.165.100.29:80 209.165.100.29:80

YourRouter#

verifying it works by successfully pinging from PC0, to 209.165.100.29 and from the command line issue the command *show ip nat translations*