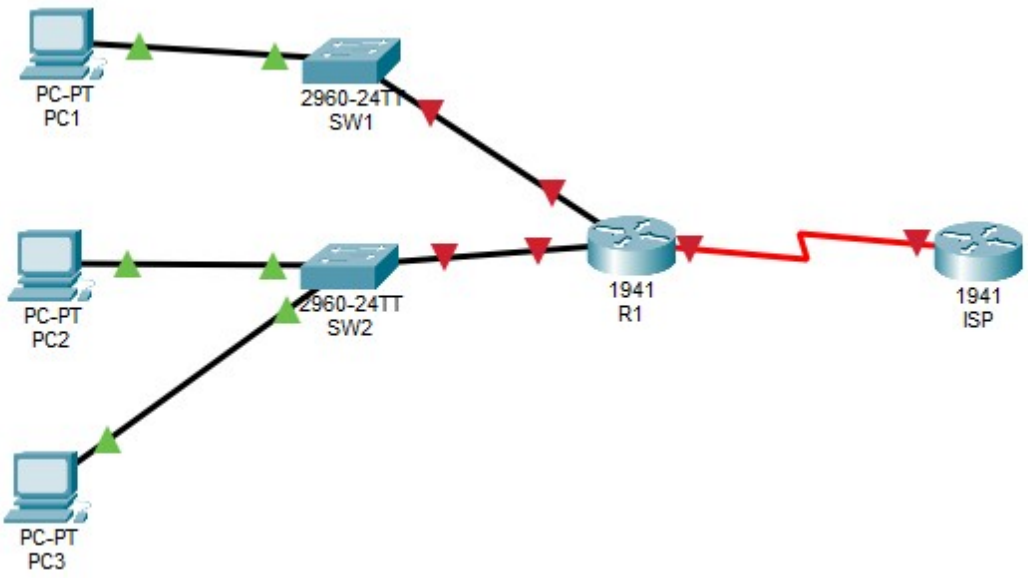
SOMMAIRE

1. Initialisation du Réseau

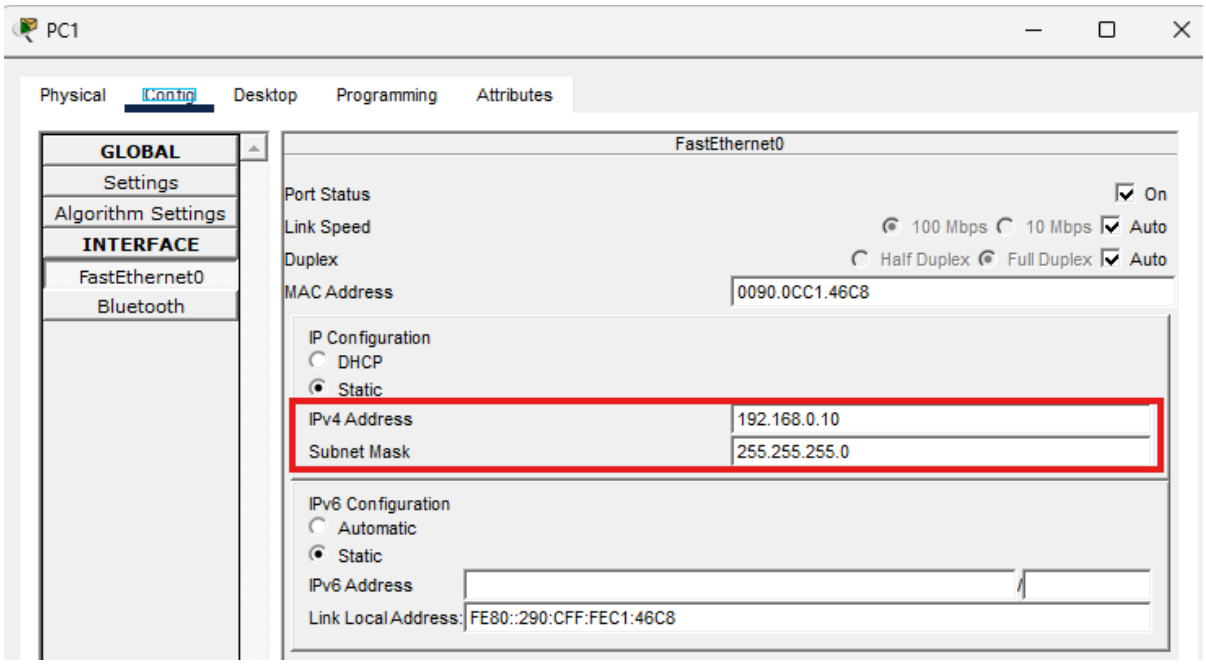
J’initie le réseau conformément à la topologie



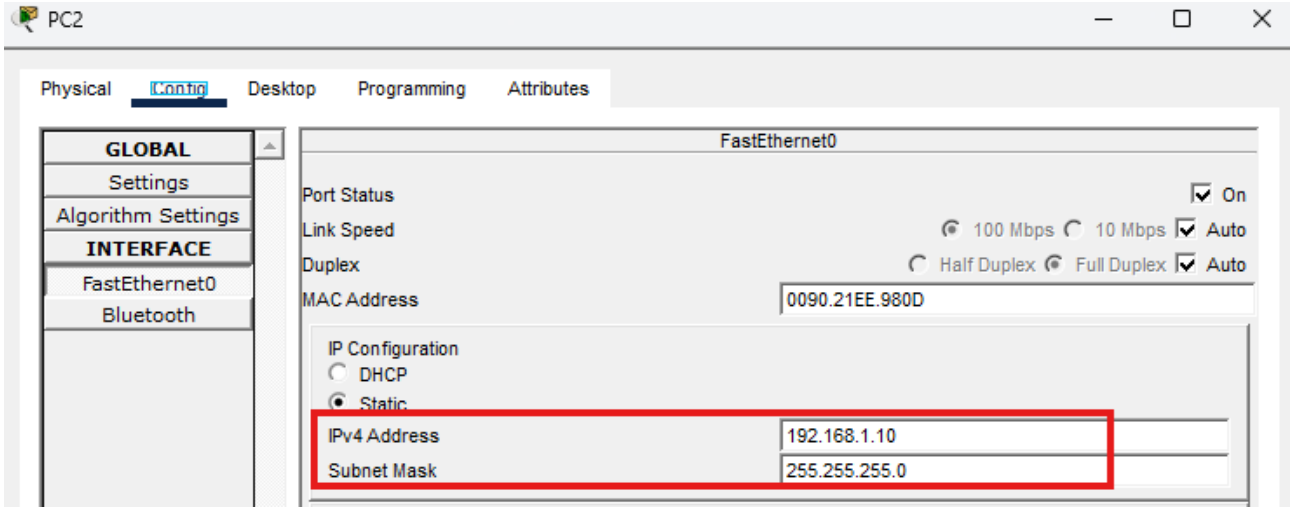
2. Configuration des PC

Je configure les PC

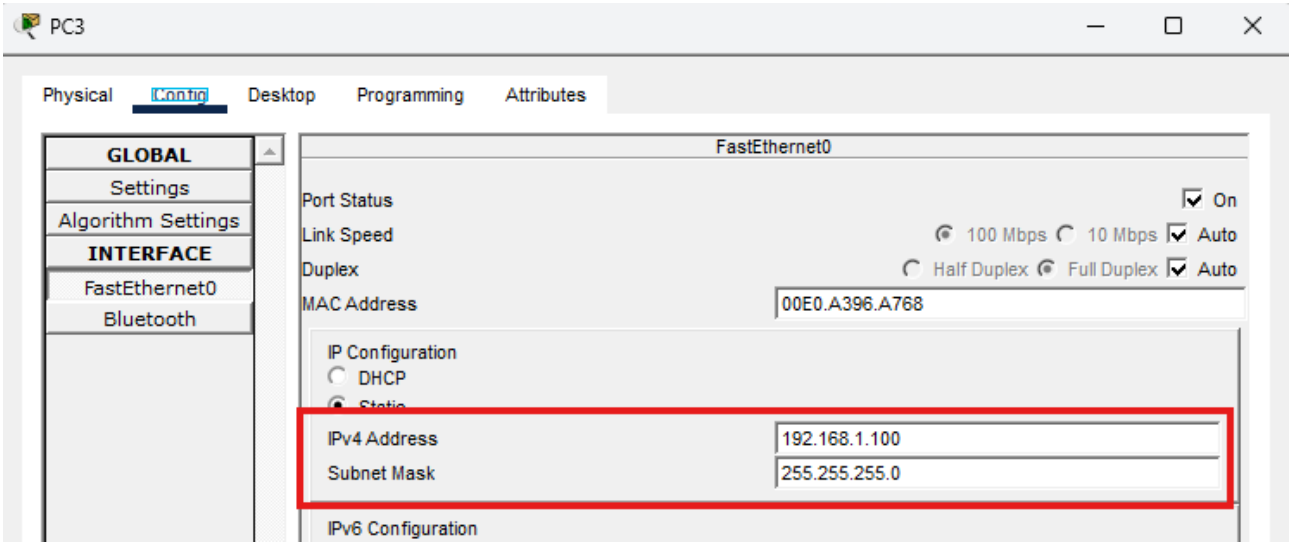
PC-1 :



PC-2 :



PC-3 :



3. Configuration de R1

Je configure le R1 :

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#enable secret class
R1(config)#no ip domain-lookup
R1(config)#service password-encryption
R1(config)#int g0/0
R1(config-if)#ip address 192.168.0.1 255.255.255.0
R1(config-if)#no shut

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
```

```
R1(config-if)#int s0/0/0
R1(config-if)#ip address 80.79.100.2 255.255.255.252
R1(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
R1(config-if)#int g0/1
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#no shut

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
```

Je mets une route par défaut

```
R1(config)#ip route 0.0.0.0 0.0.0.0 80.79.100.1
R1(config)#
```

4. Configuration du routeur ISP

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname ISP
ISP(config)#enable secret class
```

```
ISP(config)#no ip domain-lookup
ISP(config)#service password-encryption
ISP(config)#int s0/0/0
ISP(config-if)#ip address 80.79.100.1 255.255.255.252
ISP(config-if)#no shut

ISP(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
```

Configuration de la route vers le pool d'adresses publiques

```
ISP(config)#ip route 201.49.10.16 255.255.255.240 80.79.100.2
ISP(config)#
```

Je configure une loopback

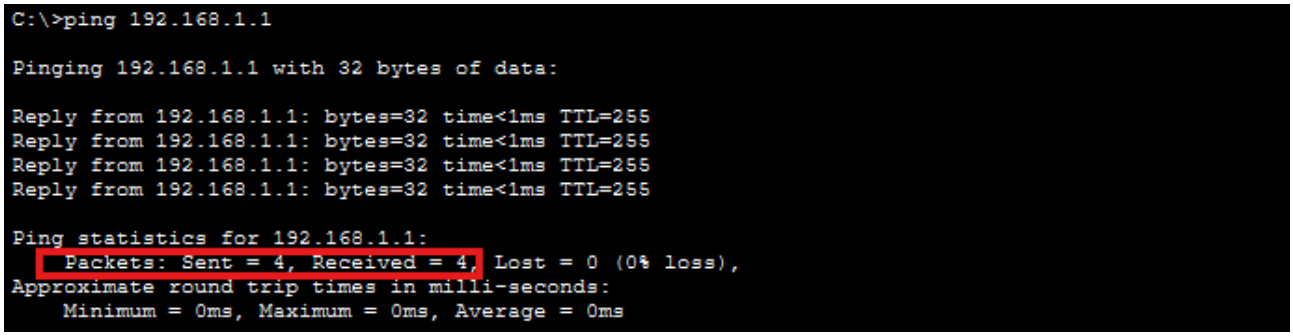
```
ISP(config)#int lo0

ISP(config-if)#
%LINK-3-UPDOWN: Interface Loopback0, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

ISP(config-if)#ip address 8.8.8.8 255.255.255.255
ISP(config-if)#exit
ISP(config)#
```

Ping depuis chaque PC vers R1

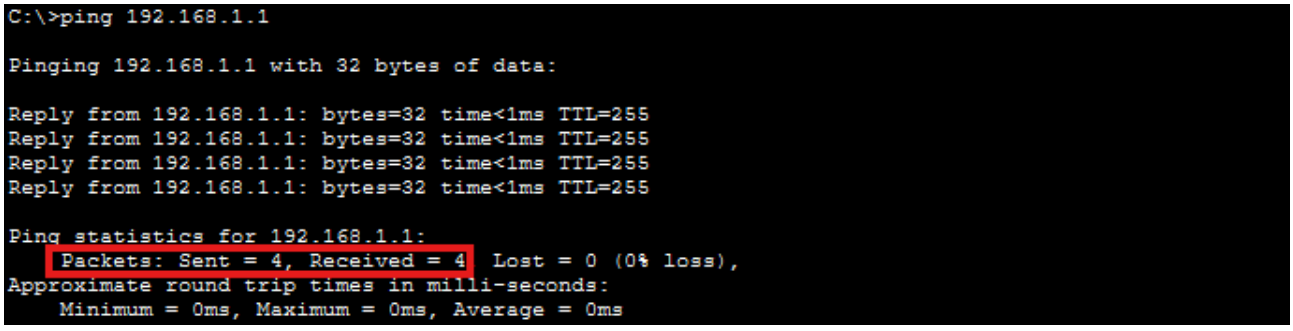
PC1 :

```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC2 :



PC3 :



Ping PC3 depuis PC1

```
C:\>ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:

Reply from 192.168.1.100: bytes=32 time<1ms TTL=127
Reply from 192.168.1.100: bytes=32 time<1ms TTL=127
Reply from 192.168.1.100: bytes=32 time<1ms TTL=127
Reply from 192.168.1.100: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Ping 8.8.8.8 depuis R1

```
R1#ping 8.8.8.8

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 8.8.8.8, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/4/6 ms

R1#
```

4. Configuration commune à tout type de NAT

J'indique les interfaces « inside » et « outside »

```
R1(config)#int g0/0
R1(config-if)#ip nat inside
R1(config-if)#exit
R1(config)#int g0/1
R1(config-if)#ip nat inside
R1(config-if)#exit
R1(config)#int s0/0/0
R1(config-if)#ip nat outside
R1(config-if)#exit
R1(config)#
```

5. Configuration du NAT statique pour PC3 (redirection)

Je configure la translation statique

```
R1(config)#ip nat inside source static 192.168.1.100 201.49.10.30
R1(config)#^Z
R1#
```

Je tape la commande **sh ip nat translations** pour voir la table de translations

```
R1#sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
---  201.49.10.30      192.168.1.100      ---                ---

R1#
```

Je ping 8.8.8.8 à partir de PC3

```
C:\>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Reply from 8.8.8.8: bytes=32 time=1ms TTL=254
Reply from 8.8.8.8: bytes=32 time=11ms TTL=254
Reply from 8.8.8.8: bytes=32 time=1ms TTL=254
Reply from 8.8.8.8: bytes=32 time=10ms TTL=254

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 11ms, Average = 5ms

C:\>
```

En retapant la commande **sh ip nat translations** je vois que les paquets ont été translatés

```
R1#sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
icmp 201.49.10.30:17   192.168.1.100:17   8.8.8.8:17         8.8.8.8:17
icmp 201.49.10.30:18   192.168.1.100:18   8.8.8.8:18         8.8.8.8:18
icmp 201.49.10.30:19   192.168.1.100:19   8.8.8.8:19         8.8.8.8:19
icmp 201.49.10.30:20   192.168.1.100:20   8.8.8.8:20         8.8.8.8:20
---  201.49.10.30      192.168.1.100      ---                ---
```

Je ping 201.49.10.30 depuis le routeur ISP

```
ISP#ping 201.49.10.30

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 201.49.10.30, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/8/10 ms

ISP#
```

J’affiche la table de translation depuis R1

```
R1#sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
icmp 201.49.10.30:10   192.168.1.100:10   80.79.100.1:10     80.79.100.1:10
icmp 201.49.10.30:6    192.168.1.100:6    80.79.100.1:6      80.79.100.1:6
icmp 201.49.10.30:7    192.168.1.100:7    80.79.100.1:7      80.79.100.1:7
icmp 201.49.10.30:8    192.168.1.100:8    80.79.100.1:8      80.79.100.1:8
icmp 201.49.10.30:9    192.168.1.100:9    80.79.100.1:9      80.79.100.1:9
---  201.49.10.30      192.168.1.100      ---                ---

R1#
```

On voit bien que les ping ont été redirigé vers PC3 (192.168.1.100)

6. Configuration du NAT dynamique avec pool d’adresses (sans et avec surcharge)

Je créer le pool d’adresses

```
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#ip nat pool POOL-NAT-LAN2 201.49.10.17 201.49.10.29 netmask 255.255.255.240
R1(config)#
```

Je créer une ACL

```
R1(config)#access-list 1 deny 192.168.1.100
R1(config)#access-list 1 permit 192.168.1.0 0.0.0.255
R1(config)#
```

Je configure le NAT

```
R1(config)#ip nat inside source list 1 pool POOL-NAT-LAN2
R1(config)#
```

```
R1(config)#ip nat inside source list 1 pool POOL-NAT-LAN2 overload
R1(config)#
```

Je ping 8.8.8.8 depuis PC2

```
C:\>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Reply from 8.8.8.8: bytes=32 time=12ms TTL=254
Reply from 8.8.8.8: bytes=32 time=1ms TTL=254
Reply from 8.8.8.8: bytes=32 time=1ms TTL=254
Reply from 8.8.8.8: bytes=32 time=1ms TTL=254

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 12ms, Average = 3ms
```

7. Configuration du NAT dynamique sans pool d'adresses (avec surcharge : fonction PAT)

```
R1(config)#access-list 2 permit 192.168.0.0 0.0.0.255
R1(config)#ip nat inside source list 2 interface s0/0/0 overload
R1(config)#
```

Depuis PC1 je ping 8.8.8.8

```
C:\>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Reply from 8.8.8.8: bytes=32 time=6ms TTL=254
Reply from 8.8.8.8: bytes=32 time=1ms TTL=254
Reply from 8.8.8.8: bytes=32 time=1ms TTL=254
Reply from 8.8.8.8: bytes=32 time=4ms TTL=254

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 6ms, Average = 3ms

C:\>
```