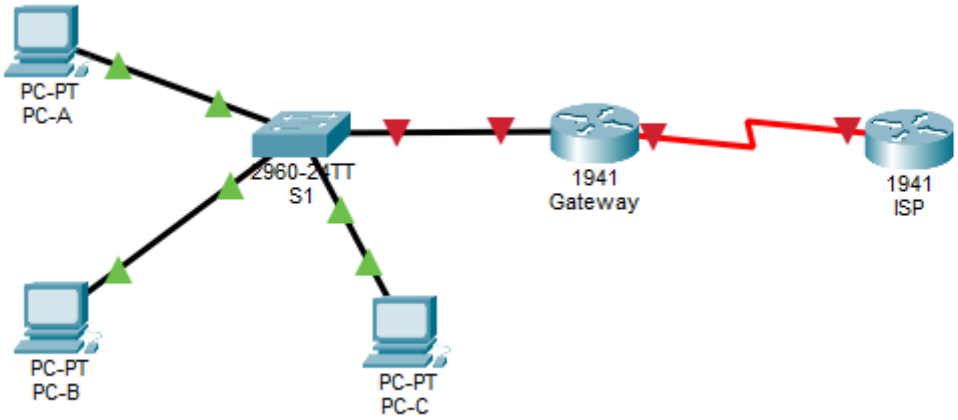
SOMMAIRE

Partie 1: Création du réseau et vérification de la connectivité

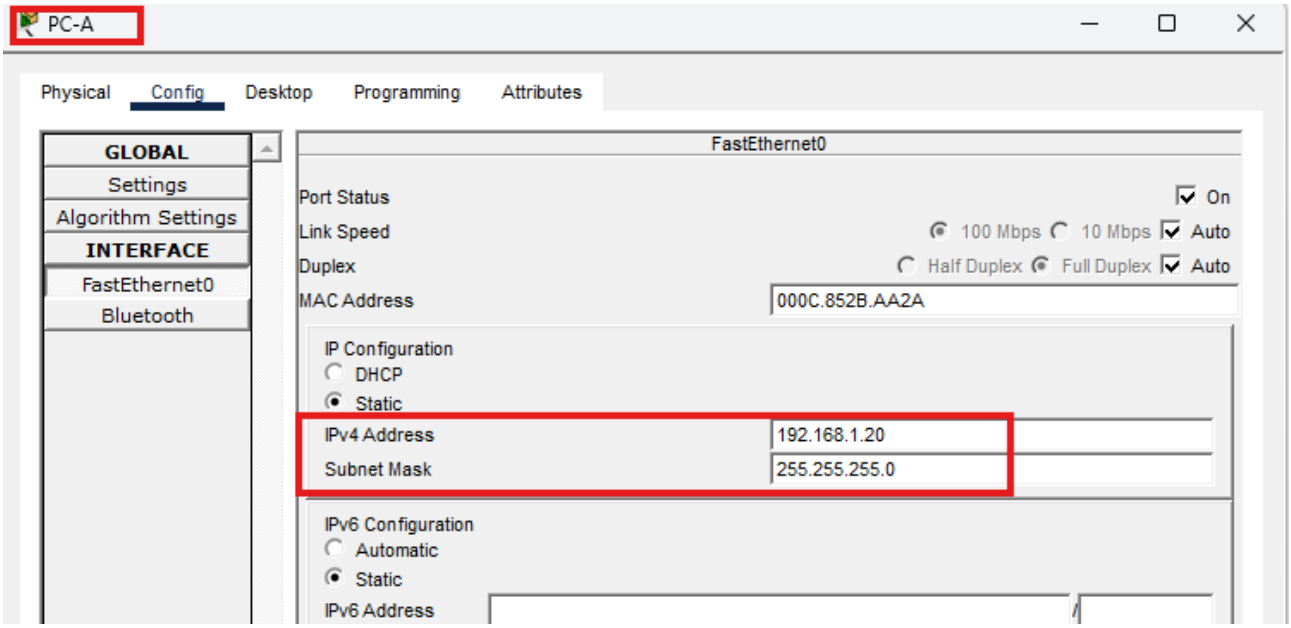
Étape 1: Câblez le réseau conformément à la topologie

Je câble le réseau conformément à la topologie

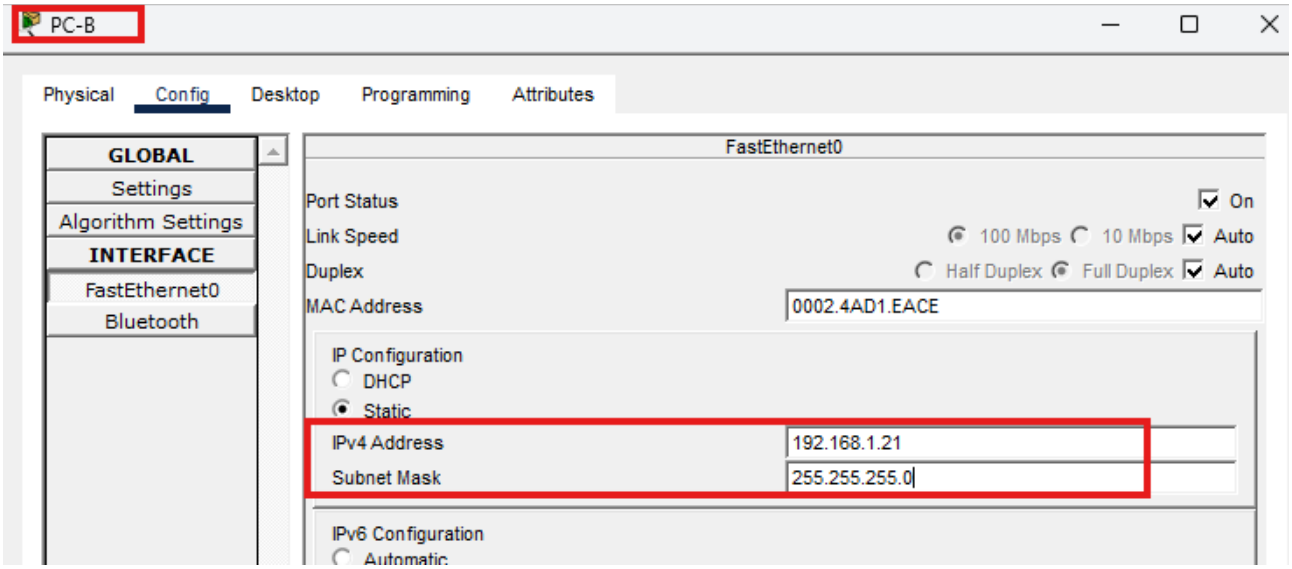


Étape 2: Configurez les hôtes de PC

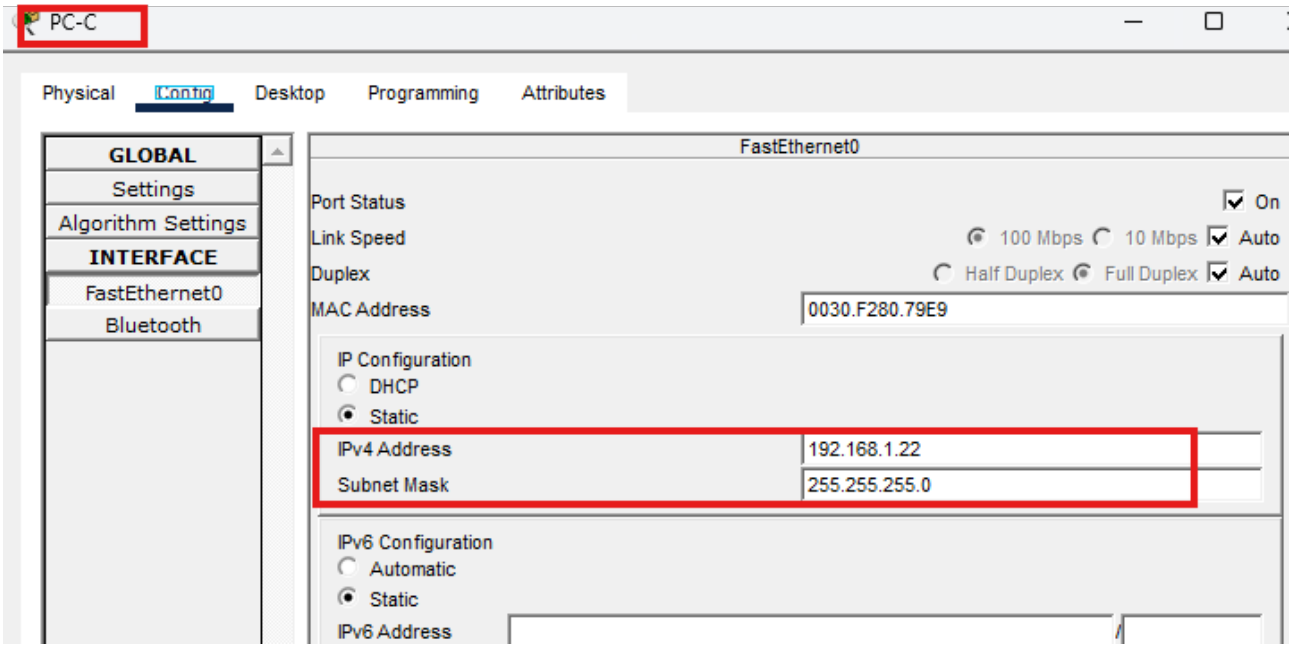
PC-A :



PC-B :



PC-C :



Étape 4: Configurez les paramètres de base pour chaque routeur

Je configure le routeur Gateway :

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#hostname Gateway
Gateway(config)#int g0/1
Gateway(config-if)#ip address 192.168.1.1 255.255.255.0
Gateway(config-if)#no shut

Gateway(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

Gateway(config-if)#int s0/0/1
Gateway(config-if)#ip address 209.165.201.18 255.255.255.252
Gateway(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/1, changed state to down
Gateway(config-if)#
```

```
Gateway(config-if)#exit
Gateway(config)#enable secret class
Gateway(config)#line vty 0 4
Gateway(config-line)#password cisco
Gateway(config-line)#exec
Gateway(config-line)#exec-timeout 5 0
Gateway(config-line)#logging synchronous
Gateway(config-line)#login
Gateway(config-line)#
```

Configuration du routeur ISP :

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#hostname ISP
ISP(config)#enable secret class
ISP(config)#line vty 0 4
ISP(config-line)#password cisco
ISP(config-line)#exec-timeout 5 0
ISP(config-line)#login
ISP(config-line)#logging synchronous
ISP(config-line)#exit
ISP(config)#int s0/0/0
ISP(config-if)#ip address 209.165.201.17 255.255.255.252
ISP(config-if)#no shut

ISP(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

ISP(config-if)#int lo0
ISP(config-if)#ip address 192.31.7.1 255.255.255.255

ISP(config-if)#clock rate 128000
ISP(config-if)#
```

Étape 5: Configurez le routage statique

Je créer une route statique depuis le routeur ISP

```
ISP(config)#ip route 209.165.200.224 255.255.255.248 209.165.201.18
ISP(config)#
```

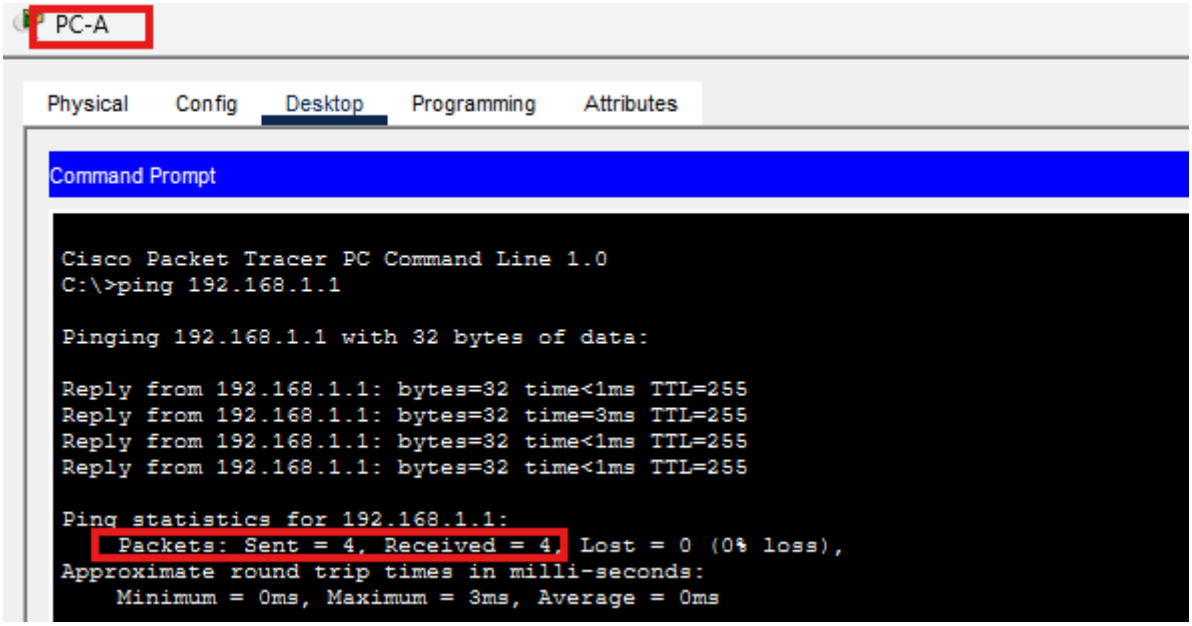
Je créer une route par défaut sur le routeur Gateway

```
Gateway#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Gateway(config)#ip route 0.0.0.0 0.0.0.0 209.165.201.17
Gateway(config)#
```

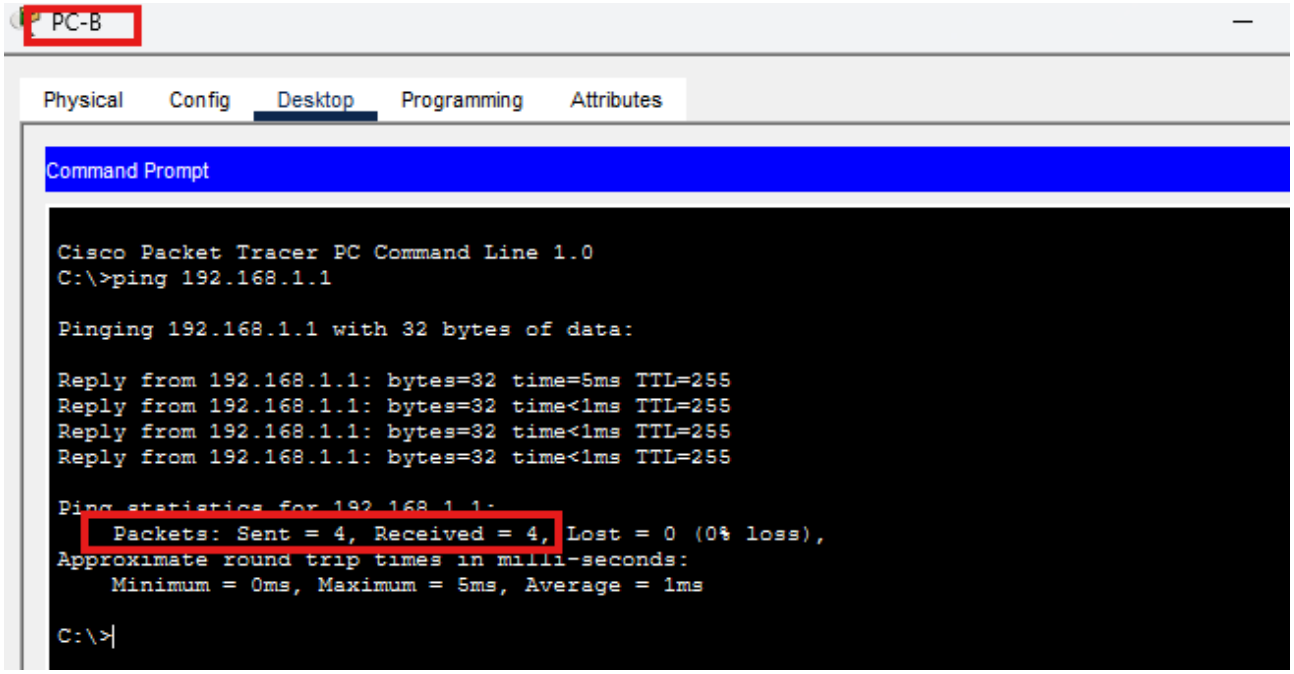
Étape 6: Vérifiez la connectivité du réseau

Depuis les PC je ping la passerelle

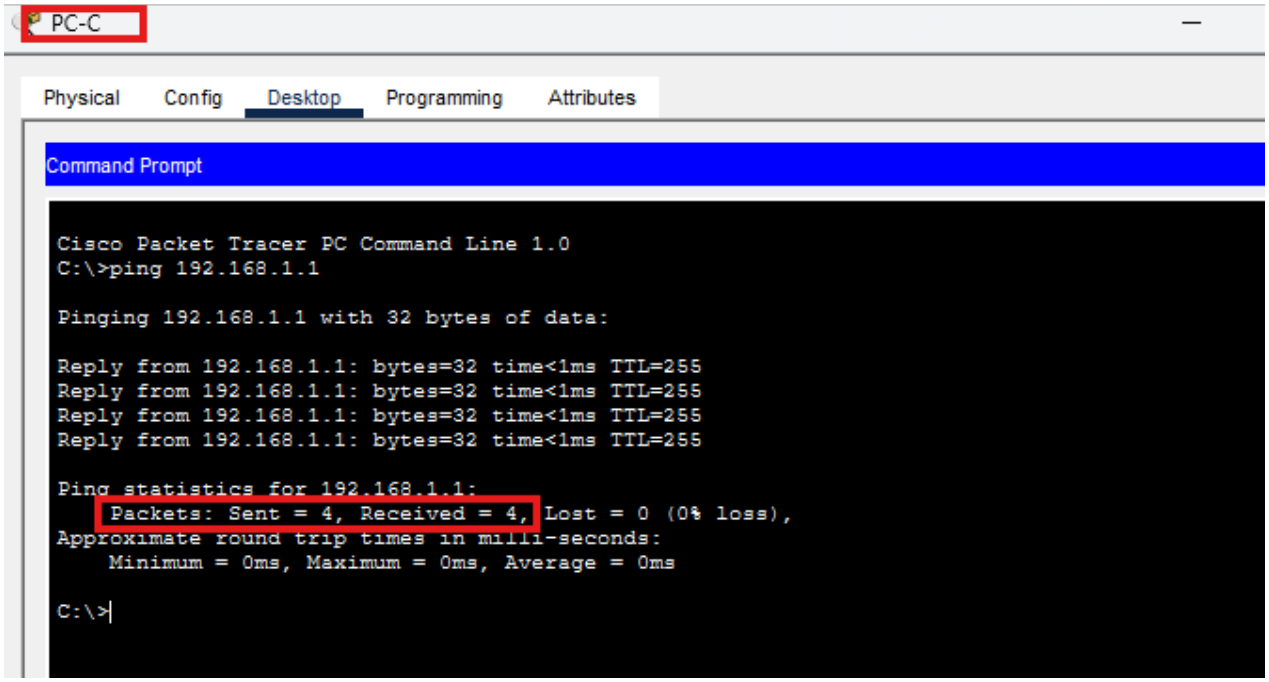
PC-A :



PC-B :


PC-B
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
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=5ms 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
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 5ms, Average = 1ms
C:\>

PC-C :


PC-C
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
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
C:\>

Partie 2: Configuration et vérification de surcharge de pool NAT

Étape 1: Définissez une liste de contrôle d'accès correspondant aux adresses IP privées du LAN

Je défini un contrôle d’accès pour permettre la traduction du réseau 192.168.1/24

```
Gateway#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Gateway(config)#access-list 1 permit 192.168.1.0 0.0.0.255
Gateway(config)#
```

Étape 2: Définissez le pool d'adresses IP publiques utilisables

Je définie un pool d’adresse IP publique qui pourra être utilisables

```
Gateway(config)#ip nat pool public_access 209.165.200.225 209.165.200.230 netmask
255.255.255.248
Gateway(config)#
```

Étape 3: Définissez la NAT à partir de la liste source interne vers le groupe externe

Je configure la surcharge à partir de la liste source interne vers le groupe externe

```
Gateway(config)#ip nat inside source list 1 pool public_access overload
Gateway(config)#
```

Étape 4: Indiquez les interfaces

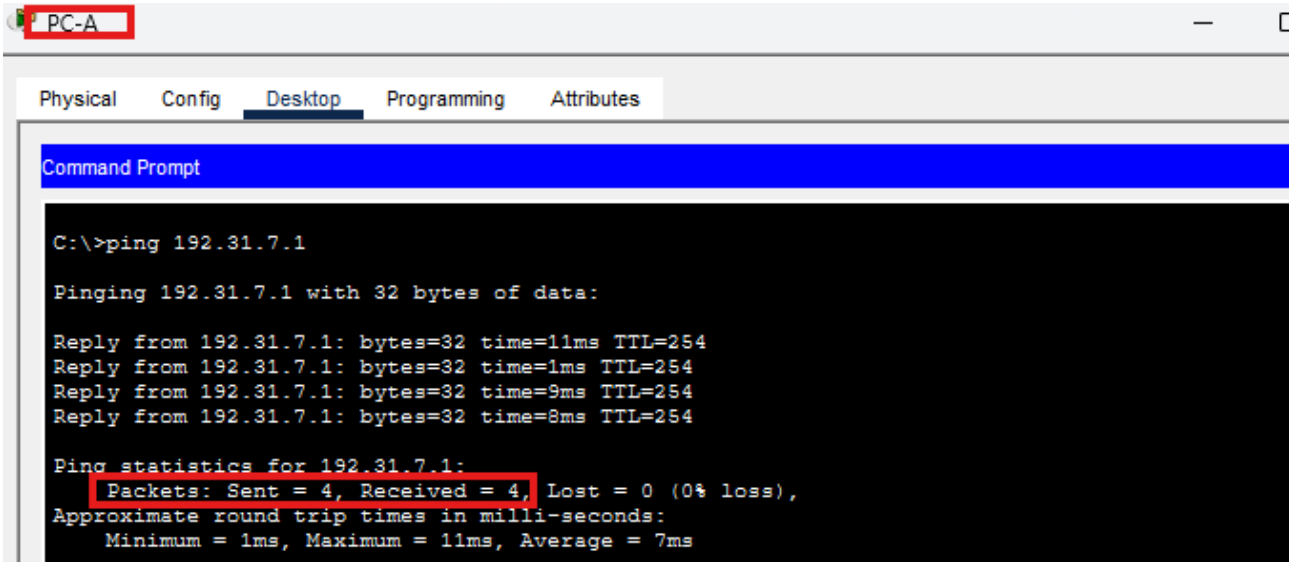
Je détermine interfaces intérieurs et extérieurs

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

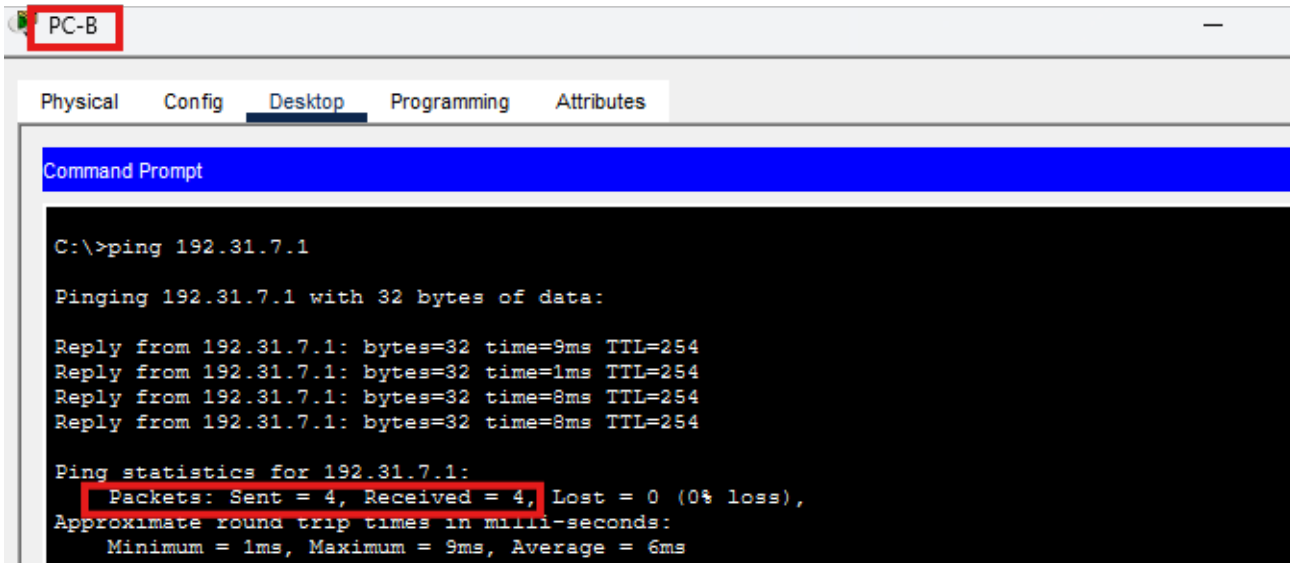
Étape 5: Vérifiez la configuration de surcharge de pool NAT

Depuis chaque PC je ping l’adresse 192.31.7.1

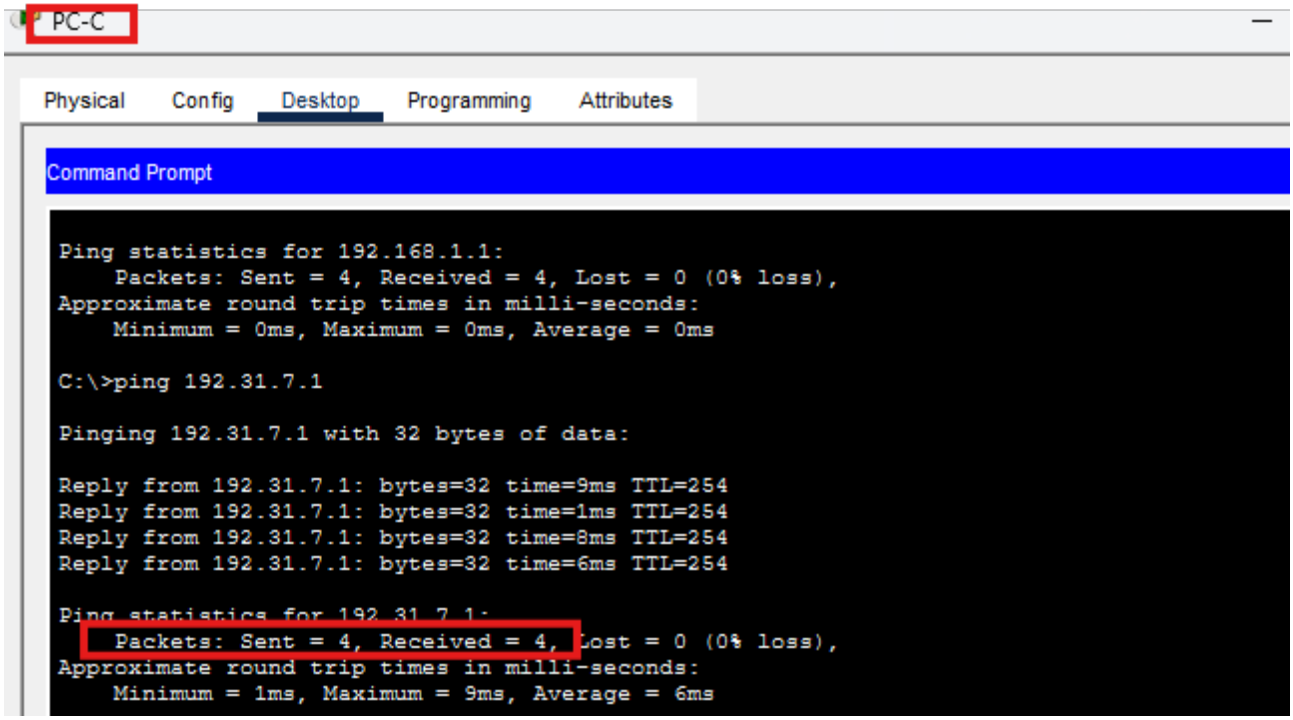
PC-A :


PC-A
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>ping 192.31.7.1
Pinging 192.31.7.1 with 32 bytes of data:
Reply from 192.31.7.1: bytes=32 time=11ms TTL=254
Reply from 192.31.7.1: bytes=32 time=1ms TTL=254
Reply from 192.31.7.1: bytes=32 time=9ms TTL=254
Reply from 192.31.7.1: bytes=32 time=8ms TTL=254
Ping statistics for 192.31.7.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 11ms, Average = 7ms

PC-B :


PC-B
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>ping 192.31.7.1
Pinging 192.31.7.1 with 32 bytes of data:
Reply from 192.31.7.1: bytes=32 time=9ms TTL=254
Reply from 192.31.7.1: bytes=32 time=1ms TTL=254
Reply from 192.31.7.1: bytes=32 time=8ms TTL=254
Reply from 192.31.7.1: bytes=32 time=8ms TTL=254
Ping statistics for 192.31.7.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 9ms, Average = 6ms

PC-C :


PC-C
Physical
Config
Desktop
Programming
Attributes
Command Prompt
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
C:\>ping 192.31.7.1
Pinging 192.31.7.1 with 32 bytes of data:
Reply from 192.31.7.1: bytes=32 time=9ms TTL=254
Reply from 192.31.7.1: bytes=32 time=1ms TTL=254
Reply from 192.31.7.1: bytes=32 time=8ms TTL=254
Reply from 192.31.7.1: bytes=32 time=6ms TTL=254
Ping statistics for 192.31.7.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 9ms, Average = 6ms

J'affiche les statistiques nat depuis le routeur Gateway

```
Gateway#sh ip nat statistics
Total translations: 12 (0 static, 12 dynamic, 12 extended)
Outside Interfaces: Serial0/0/1
Inside Interfaces: GigabitEthernet0/1
Hits: 24  Misses: 24
Expired translations: 12
Dynamic mappings:
-- Inside Source
access-list 1 pool public_access refCount 12
 pool public_access: netmask 255.255.255.248
        start 209.165.200.225 end 209.165.200.230
        type generic, total addresses 6 , allocated 1 (16%), misses 0
Gateway#
```

J'affiche les NAT sur le routeur Gateway

```
Gateway#sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
icmp 209.165.200.225:1024192.168.1.21:17   192.31.7.1:17      192.31.7.1:1024
icmp 209.165.200.225:1025192.168.1.21:18   192.31.7.1:18      192.31.7.1:1025
icmp 209.165.200.225:1026192.168.1.21:19   192.31.7.1:19      192.31.7.1:1026
```

Partie 3: Configuration et vérification de la fonction PAT

Étape 1: Effacez les NAT et les statistiques sur le routeur de passerelle

Je supprime les NAT

```
Gateway#clear ip nat translation *
Gateway#
```

Étape 2: Vérifiez la configuration NAT

```
Gateway#sh ip nat statistics
Total translations: 0 (0 static, 0 dynamic, 0 extended)
Outside Interfaces: Serial0/0/1
Inside Interfaces: GigabitEthernet0/1
Hits: 48  Misses: 48
Expired translations: 48
Dynamic mappings:
-- Inside Source
access-list 1 pool public_access refCount 0
 pool public_access: netmask 255.255.255.248
       start 209.165.200.225 end 209.165.200.230
       type generic, total addresses 6 , allocated 0 (0%), misses 0
Gateway#
```

Étape 3: Supprimez le pool des adresses IP publiques utilisables

Je supprime le pool des adresses IP et la traduction NAT

```
Gateway(config)#no ip nat pool public_access 209.165.200.225 209.165.200.230 netmask
255.255.255.248
Gateway(config)#
```

Étape 4: Supprimez la traduction NAT depuis la liste source interne vers le pool externe

```
Gateway(config)#no ip nat inside source list 1 pool public_access overload
Gateway(config)#
```

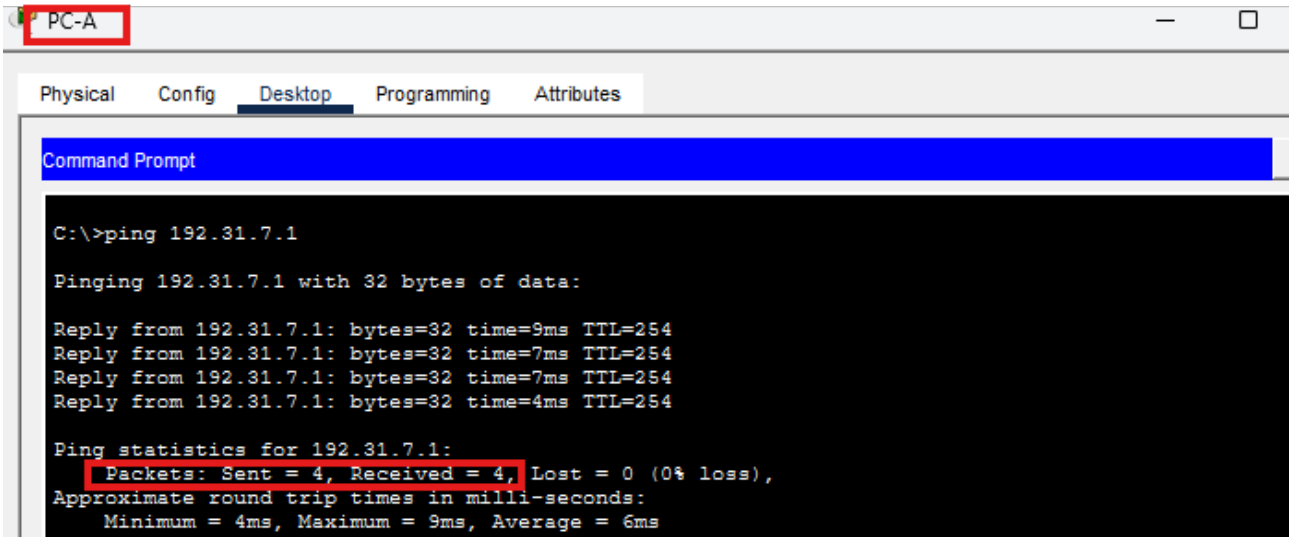
Étape 5: Associez la liste source à l'interface externe

```
Gateway(config)#ip nat inside source list 1 interface serial 0/0/1 overload
Gateway(config)#
```

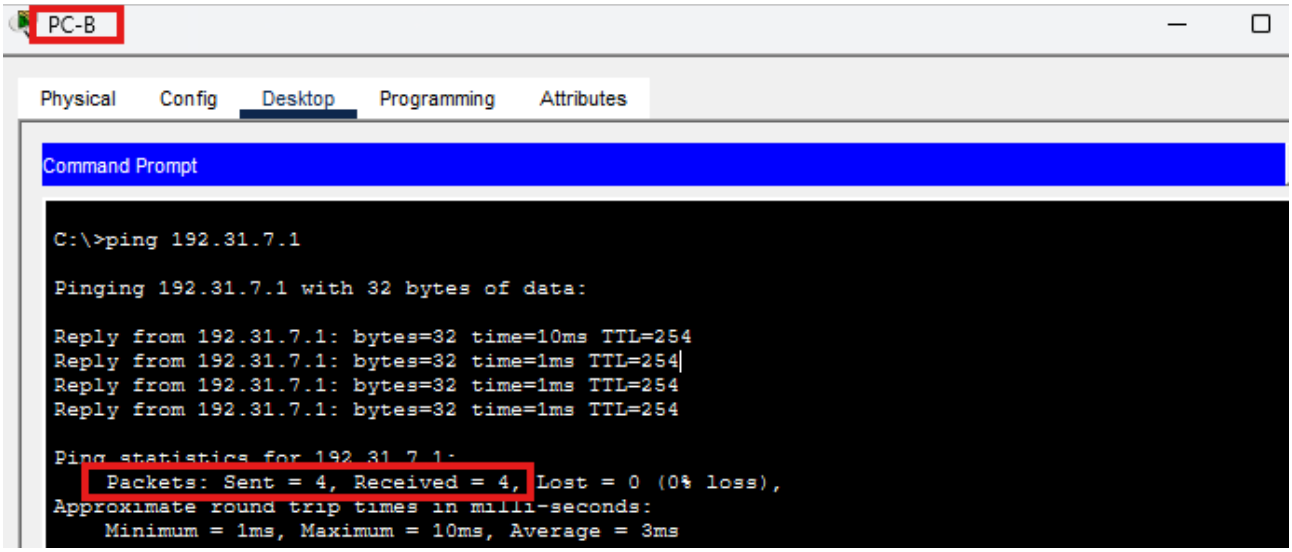
Étape 6: Testez la configuration PAT

Depuis chaque PC j'envoie une requête ping à l'adresse 192.31.7.1

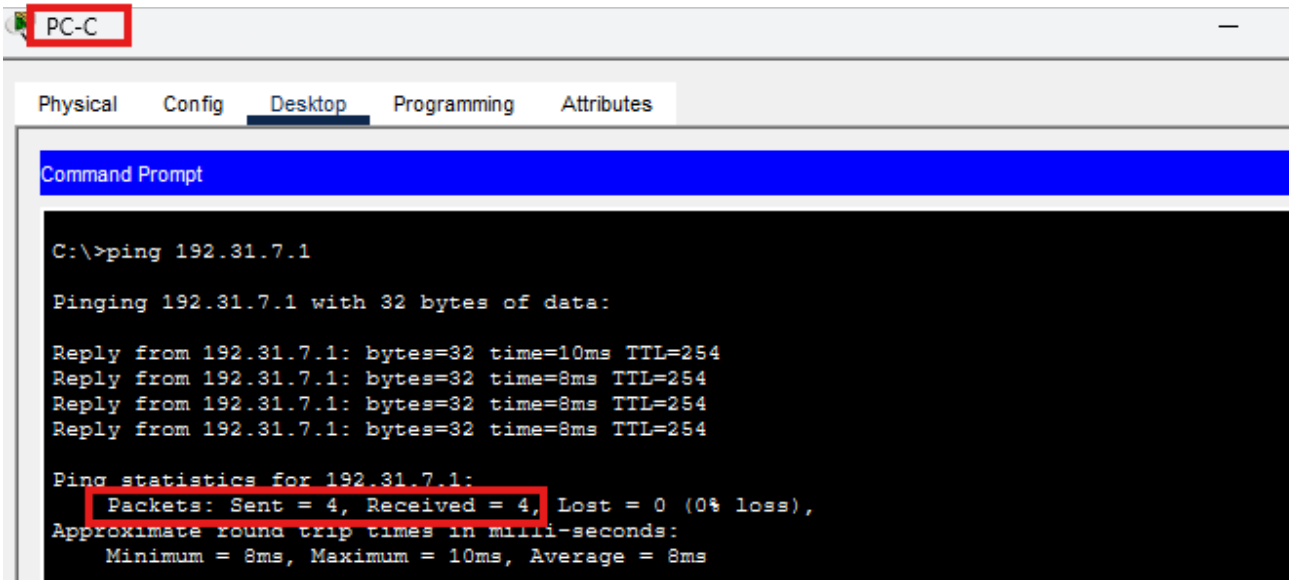
PC-A :



PC-B :


PC-B
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>ping 192.31.7.1
Pinging 192.31.7.1 with 32 bytes of data:
Reply from 192.31.7.1: bytes=32 time=10ms TTL=254
Reply from 192.31.7.1: bytes=32 time=1ms TTL=254
Reply from 192.31.7.1: bytes=32 time=1ms TTL=254
Reply from 192.31.7.1: bytes=32 time=1ms TTL=254
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 10ms, Average = 3ms

PC-C :


PC-C
Physical
Config
Desktop
Programming
Attributes
Command Prompt
C:\>ping 192.31.7.1
Pinging 192.31.7.1 with 32 bytes of data:
Reply from 192.31.7.1: bytes=32 time=10ms TTL=254
Reply from 192.31.7.1: bytes=32 time=8ms TTL=254
Reply from 192.31.7.1: bytes=32 time=8ms TTL=254
Reply from 192.31.7.1: bytes=32 time=8ms TTL=254
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 8ms, Maximum = 10ms, Average = 8ms

J’affiche les statistiques NAT depuis le routeur Gateway

```
Gateway#sh ip nat statistics
Total translations: 12 (0 static, 12 dynamic, 12 extended)
Outside Interfaces: Serial0/0/1
Inside Interfaces: GigabitEthernet0/1
Hits: 84  Misses: 84
Expired translations: 72
Dynamic mappings:
Gateway#sh ip nat statistics
Total translations: 12 (0 static, 12 dynamic, 12 extended)
Outside Interfaces: Serial0/0/1
Inside Interfaces: GigabitEthernet0/1
Hits: 84  Misses: 84
Expired translations: 72
Dynamic mappings:
Gateway#
```

J’affiche les traductions NAT depuis la Gateway

```
Gateway#sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
icmp 209.165.201.18:1024192.168.1.21:33   192.31.7.1:33      192.31.7.1:1024
icmp 209.165.201.18:1025192.168.1.21:34   192.31.7.1:34      192.31.7.1:1025
icmp 209.165.201.18:1026192.168.1.21:35   192.31.7.1:35      192.31.7.1:1026
```