R201 – TP2 -Routage statique

2 Mise en place de la maquette

2.2 Définition du plan d'adressage

b) Pour chaque liaison inter-routeur :

Appareil	Repère Interface	@IP	Mask
Salle 1			
Adresse de sous réseau 1		**10.25.1.0/24**	255.255.255.0
PC11	Fa0	10.25.1.1	255.255.255.0
1PC12	Fa0	10.25.1.2	255.255.255.0
PC13	Fa0	10.25.1.3	255.255.255.0
R10	Fa0/	10.25.1.254	255.255.255.0
Salle 2			
Adresse de sous réseau 2		**10.25.2.0/24**	255.255.255.0
PC21	Fa0	10.25.2.1	255.255.255.0
PC22	Fa0	10.25.2.2	255.255.255.0
PC23	Fa0	10.25.2.3	255.255.255.0
R10	Fa0/	10.25.2.254	255.255.255.0
Salle 3			
Adresse de sous réseau 3		**10.25.3.0/24**	255.255.255.0
PC31	Fa0	10.25.3.1	255.255.255.0
PC32	Fa0	10.25.3.2	255.255.255.0
PC33	Fa0	10.25.3.3	255.255.255.0
R20	Fa0/	10.25.3.254	255.255.255.0
Salle 4			
Adresse de sous réseau 4		**10.25.4.0/24**	255.255.255.0
PC41	Fa0	10.25.4.1	255.255.255.0
PC42	Fa0	10.25.4.2	255.255.255.0
PC43	Fa0	10.25.4.3	255.255.255.0
R30	Fa0/	10.25.4.254	255.255.255.0
Local Technique			
Adresse de sous réseau R10-R20		10.25.254.0	255.255.255.252
R10	Se0/ /0	10.25.254.1	255.255.255.252
R20	Se0/ /0	10.25.254.2	255.255.255.252
Local Technique			
Adresse de sous réseau R20-R30		10.25.254.4	255.255.255.252
R20	Se0/ /0	10.25.254.5	255.255.255.252
R30	Se0/ /0	10.25.254.6	255.255.255.252

2.3 Connectivité :

Intégrez les captures d'écran montrant votre montage complété ainsi que les pings à l'intérieur de chaque réseau

Attention de bien montrer le nom de la station qui émet le ping.

3 Mise en service des routeurs

3.2 Configuration des adresses des routeurs

Lignes de commande pour configurer les interfaces du routeur R10

```
conf t
interface FastEthernet0/0
ip address 10.25.1.254 255.255.255.0
no shutdown
exit

conf t
interface fastEthernet0/1
ip address 10.25.2.254 255.255.255.0
no shutdown
exit

conf t
interface se0/2/0
ip address 10.25.254.1 255.255.255.252
no shutdown
exit
```

Ligne de commande pour configurer les interfaces du routeur R20

```
conf t
interface fastEthernet0/0
ip address 10.25.3.254 255.255.255.0
no shutdown
exit

conf t
interface se0/2/0
ip address 10.25.254.2 255.255.255.252
no shutdown
exit

conf t
interface se0/0/0
ip address 10.25.254.5 255.255.255.252
no shutdown
exit
```

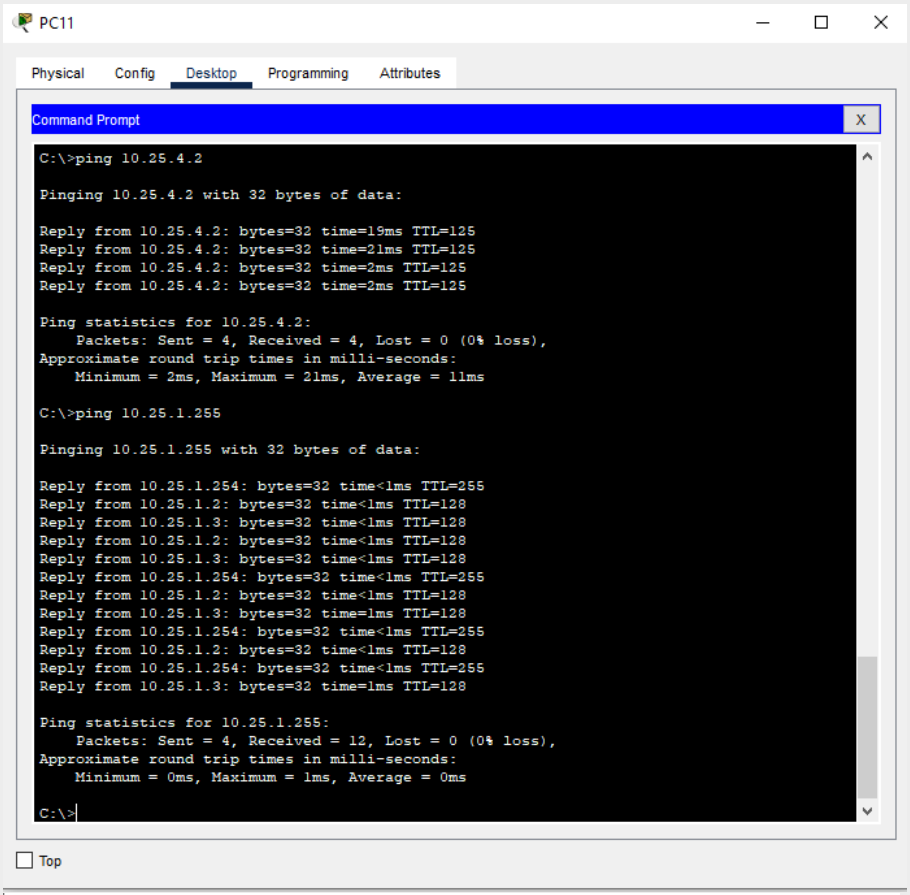
Ligne de commande pour configurer les interfaces du routeur R30

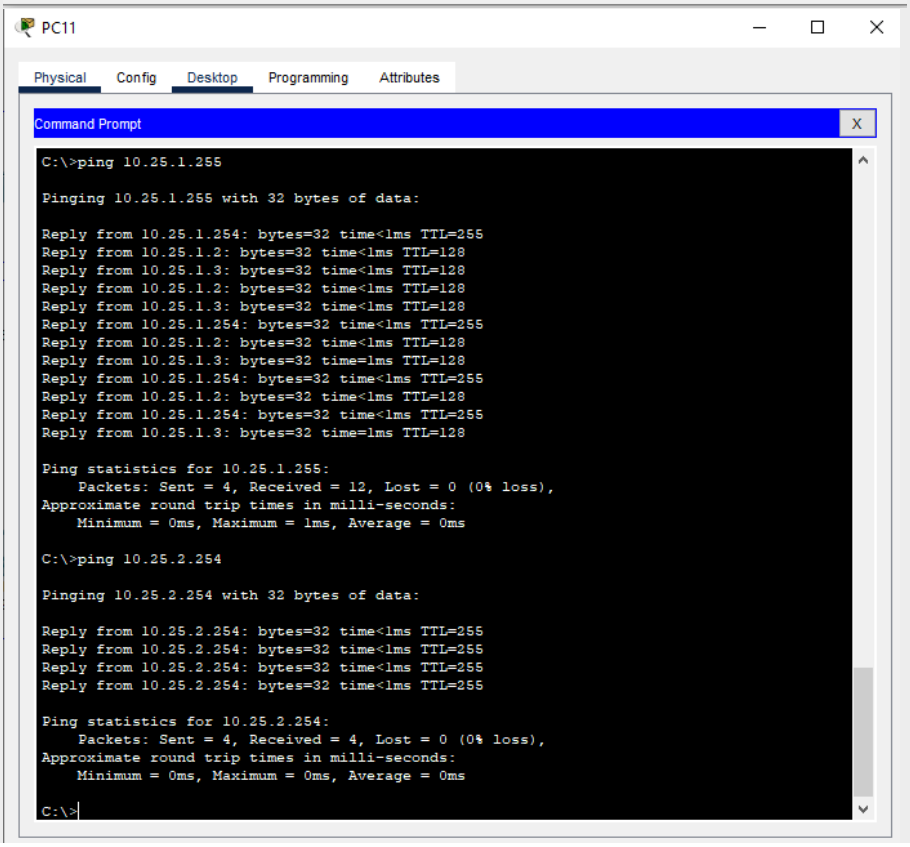
```
conf t
interface fastEthernet0/1
ip address 10.25.4.254 255.255.255.0
no shutdown
exit
```

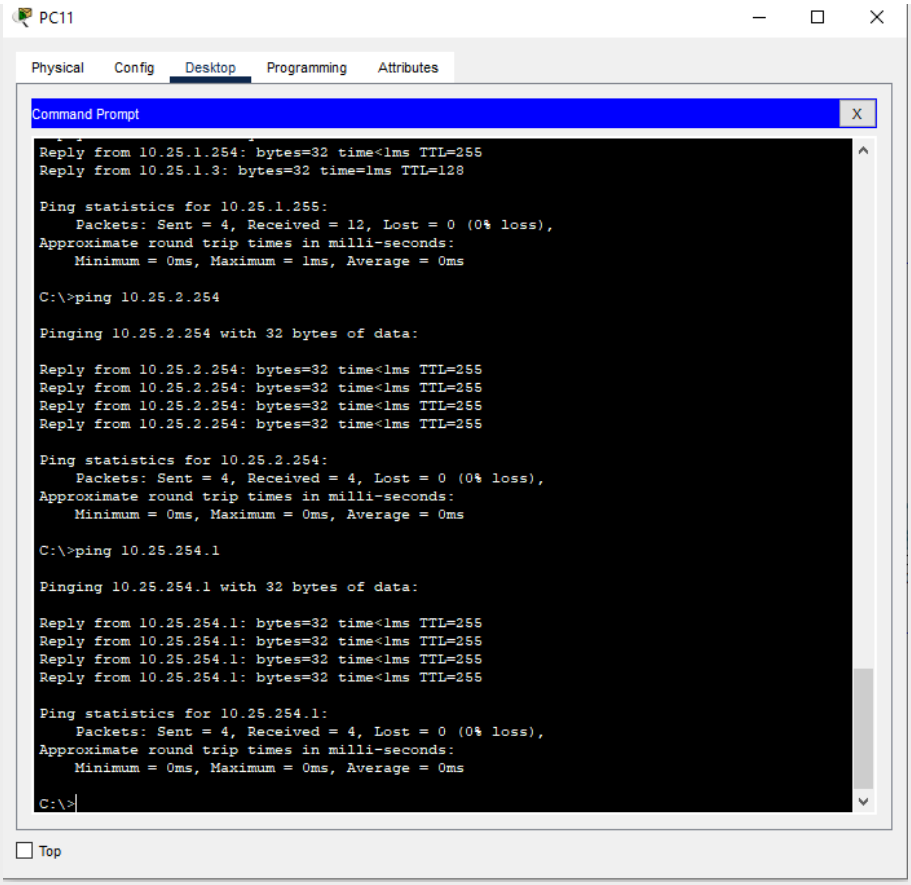
```
conf t
interface se0/2/0
ip address 10.25.254.6 255.255.255.252
no shutdown
exit
```

3.3 Connectivité PC :

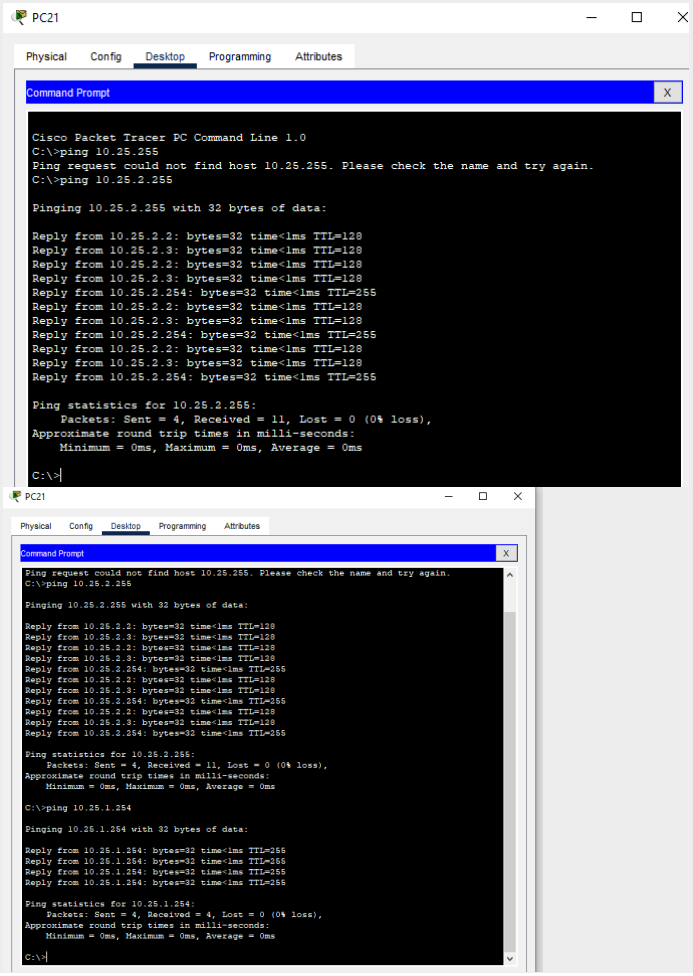
Salle 1 :



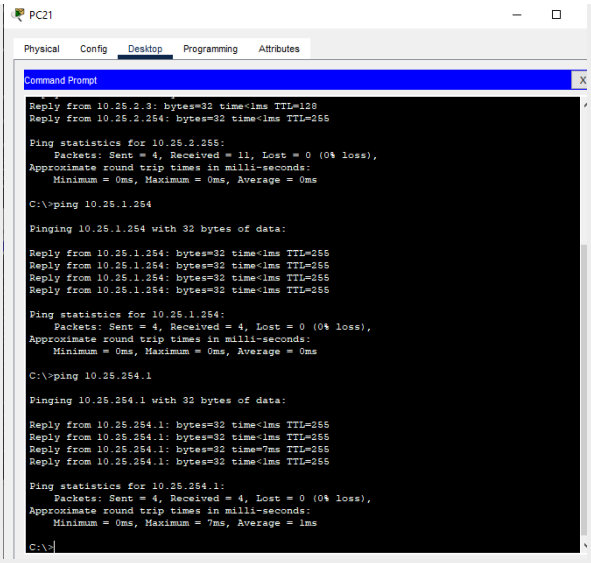



PC11
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Reply from 10.25.1.254: bytes=32 time<1ms TTL=255
Reply from 10.25.1.3: bytes=32 time=1ms TTL=128
Ping statistics for 10.25.1.255:
Packets: Sent = 4, Received = 12, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 10.25.2.254
Pinging 10.25.2.254 with 32 bytes of data:
Reply from 10.25.2.254: bytes=32 time<1ms TTL=255
Reply from 10.25.2.254: bytes=32 time<1ms TTL=255
Reply from 10.25.2.254: bytes=32 time<1ms TTL=255
Reply from 10.25.2.254: bytes=32 time<1ms TTL=255
Ping statistics for 10.25.2.254:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 10.25.254.1
Pinging 10.25.254.1 with 32 bytes of data:
Reply from 10.25.254.1: bytes=32 time<1ms TTL=255
Reply from 10.25.254.1: bytes=32 time<1ms TTL=255
Reply from 10.25.254.1: bytes=32 time<1ms TTL=255
Reply from 10.25.254.1: bytes=32 time<1ms TTL=255
Ping statistics for 10.25.254.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
Top

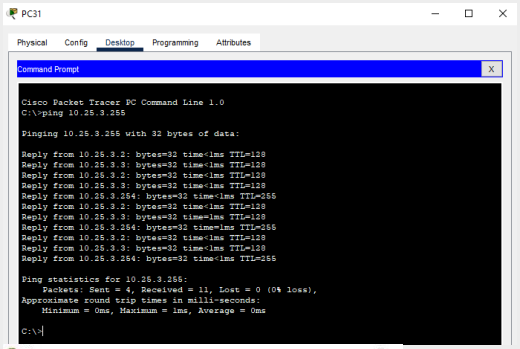
Salle 2 :

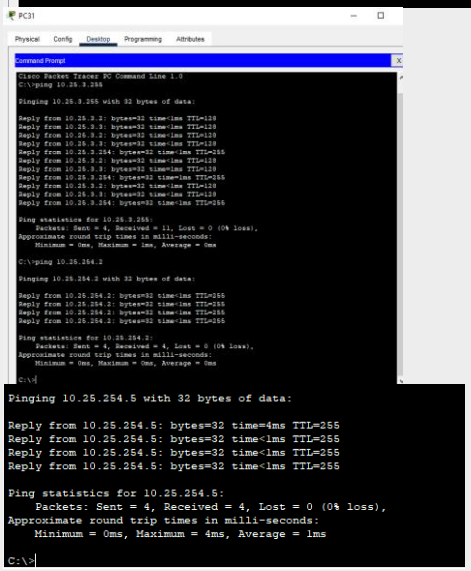

PC21
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.25.255
Ping request could not find host 10.25.255. Please check the name and try again.
C:\>ping 10.25.2.255
Pinging 10.25.2.255 with 32 bytes of data:
Reply from 10.25.2.2: bytes=32 time<1ms TTL=128
Reply from 10.25.2.3: bytes=32 time<1ms TTL=128
Reply from 10.25.2.2: bytes=32 time<1ms TTL=128
Reply from 10.25.2.3: bytes=32 time<1ms TTL=128
Reply from 10.25.2.254: bytes=32 time<1ms TTL=255
Reply from 10.25.2.2: bytes=32 time<1ms TTL=128
Reply from 10.25.2.3: bytes=32 time<1ms TTL=128
Reply from 10.25.2.254: bytes=32 time<1ms TTL=255
Reply from 10.25.2.2: bytes=32 time<1ms TTL=128
Reply from 10.25.2.3: bytes=32 time<1ms TTL=128
Reply from 10.25.2.254: bytes=32 time<1ms TTL=255
Ping statistics for 10.25.2.255:
Packets: Sent = 4, Received = 11, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>

PC21
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Ping request could not find host 10.25.255. Please check the name and try again.
C:\>ping 10.25.2.255
Pinging 10.25.2.255 with 32 bytes of data:
Reply from 10.25.2.3: bytes=32 time<1ms TTL=128
Reply from 10.25.2.3: bytes=32 time<1ms TTL=128
Reply from 10.25.2.2: bytes=32 time<1ms TTL=128
Reply from 10.25.2.3: bytes=32 time<1ms TTL=128
Reply from 10.25.2.254: bytes=32 time<1ms TTL=255
Reply from 10.25.2.2: bytes=32 time<1ms TTL=128
Reply from 10.25.2.3: bytes=32 time<1ms TTL=128
Reply from 10.25.2.254: bytes=32 time<1ms TTL=255
Reply from 10.25.2.2: bytes=32 time<1ms TTL=128
Reply from 10.25.2.3: bytes=32 time<1ms TTL=128
Reply from 10.25.2.254: bytes=32 time<1ms TTL=255
Ping statistics for 10.25.2.255:
Packets: Sent = 4, Received = 11, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 10.25.1.254
Pinging 10.25.1.254 with 32 bytes of data:
Reply from 10.25.1.254: bytes=32 time<1ms TTL=255
Reply from 10.25.1.254: bytes=32 time<1ms TTL=255
Reply from 10.25.1.254: bytes=32 time<1ms TTL=255
Reply from 10.25.1.254: bytes=32 time<1ms TTL=255
Ping statistics for 10.25.1.254:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>

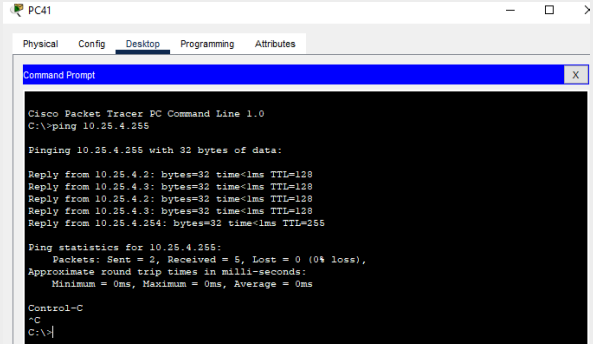


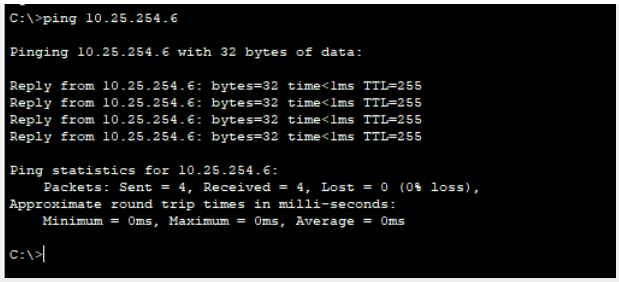
Salle 3 :





Salle 4 :





3.4 Connectivité Routeur :

R10 vers R20

```
Router#ping 10.25.2.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.25.2.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/4/7 ms

Router#
```

R20 vers R10

```
Router#ping 10.25.1.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.25.1.254, timeout is 2 seconds:
!.!.!
Success rate is 60 percent (3/5), round-trip min/avg/max = 13/15/20 ms

Router#
```

R20 vers R30

```
Router#ping 10.25.3.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.25.3.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/2/7 ms

Router#
```

R30 vers R20

```
Router#ping 10.25.2.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.25.2.254, timeout is 2 seconds:
.!.!.
Success rate is 40 percent (2/5), round-trip min/avg/max = 12/16/20 ms

Router#
```

R10 vers R30

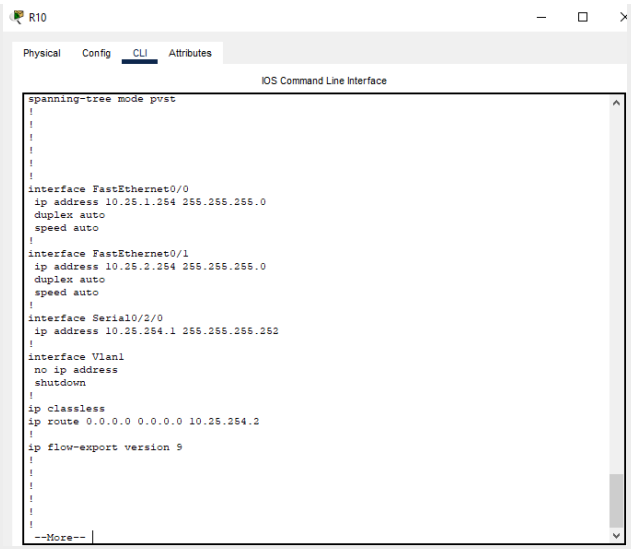
```
Router#ping 10.25.3.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.25.3.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/11/13 ms

Router#
```

R30 vers R10

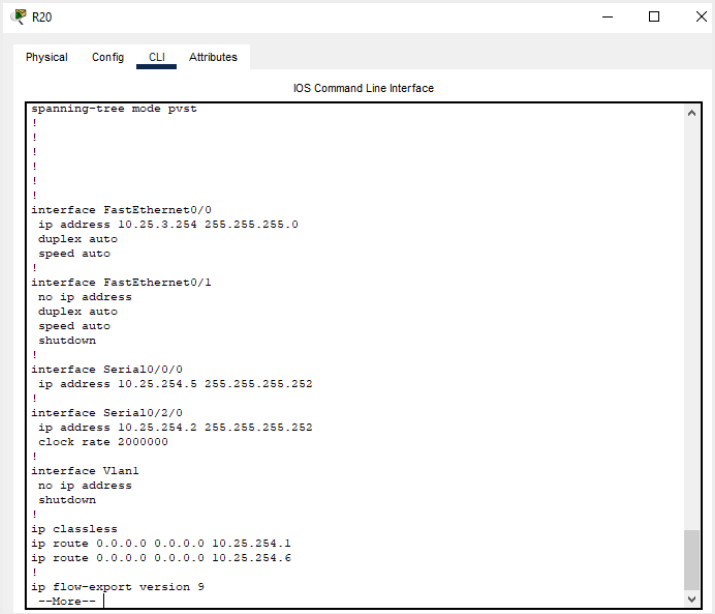
```
Router#ping 10.25.1.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.25.1.254, timeout is 2 seconds:
.!.!.
Success rate is 40 percent (2/5), round-trip min/avg/max = 16/17/19 ms

Router#
```

3.5 Configurations complémentaires

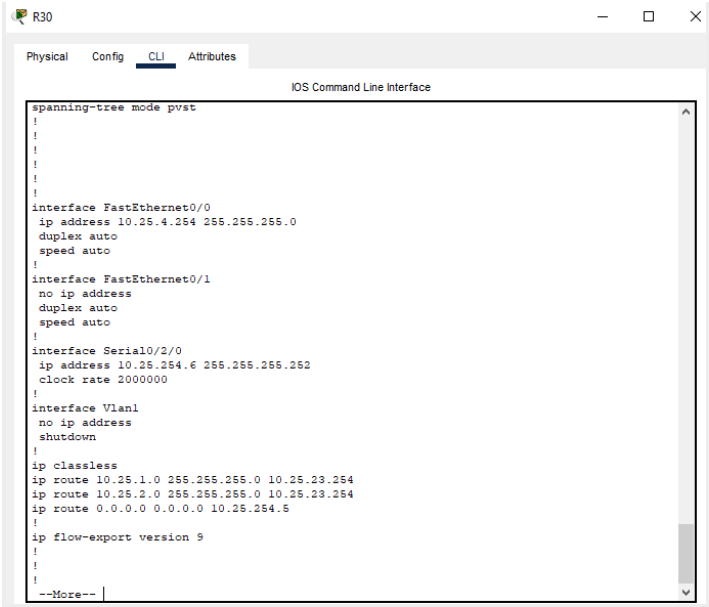
1



2



3


R30
Physical
Config
CLI
Attributes
IOS Command Line Interface
spanning-tree mode pvst
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 10.25.4.254 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 duplex auto
 speed auto
!
interface Serial0/2/0
 ip address 10.25.254.6 255.255.255.252
 clock rate 2000000
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
ip route 10.25.1.0 255.255.255.0 10.25.23.254
ip route 10.25.2.0 255.255.255.0 10.25.23.254
ip route 0.0.0.0 0.0.0.0 10.25.254.5
!
ip flow-export version 9
!
!
!
 --More--

3.6 Configuration des routes

a) Routes implicites

a.1

Vis.	Time(sec)	Last Device
	0.000	--
	0.001	PC11
	0.002	SW10
	0.003	R10
	0.004	SW20
	0.004	SW20
	0.004	SW20
	0.005	PC21
	0.006	SW20
	0.007	R10
	0.008	SW10

a.2

Vis.	Time(sec)	Last Device
	0.000	--
	0.001	PC11
	0.002	SW10
	0.003	R10
	0.004	R20
	0.005	SW30
	0.005	SW30
	0.005	SW30
	0.006	PC31
	0.007	SW30
	0.008	R20
	0.009	R10
	0.010	SW10

a.3

On a donc la route suivante :

- **PC11 – SW10 – R10 – R20 – SW30 – PC31**

b) Saisie d'une une route statique.

b.1

De R10 :
Ip route 0.0.0.0 0.0.0.0 10.25.254.2

b.2

```
R10#sh ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

Gateway of last resort is 10.25.254.2 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C       10.25.1.0/24 is directly connected, FastEthernet0/0
C       10.25.2.0/24 is directly connected, FastEthernet0/1
C       10.25.254.0/30 is directly connected, Serial0/2/0
S*   0.0.0.0/0 [1/0] via 10.25.254.2

R10#
```

c) Mise en place du routage entre la salle 1 et la salle 3

c.1

R20 :
Ip route 0.0.0.0 0.0.0.0 10.25.254.1

c.2

```
R10#sh ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

Gateway of last resort is 10.25.254.2 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C       10.25.1.0/24 is directly connected, FastEthernet0/0
C       10.25.2.0/24 is directly connected, FastEthernet0/1
C       10.25.254.0/30 is directly connected, Serial0/2/0
S*   0.0.0.0/0 [1/0] via 10.25.254.2

R10#
```

```
R20#sh ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

Gateway of last resort is 10.25.254.1 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C       10.25.3.0/24 is directly connected, FastEthernet0/0
C       10.25.254.0/30 is directly connected, Serial0/2/0
C       10.25.254.4/30 is directly connected, Serial0/0/0
S*   0.0.0.0/0 [1/0] via 10.25.254.1
                [1/0] via 10.25.254.6
```

c.3

Non car il faut rajouter une route qui va permettre d'aller de R30 à R20

Intégrez une capture d'écran montrant les tables de routage des routeurs R10 et R20.

d) Mise en place du routage entre la salle 3 et la salle 4

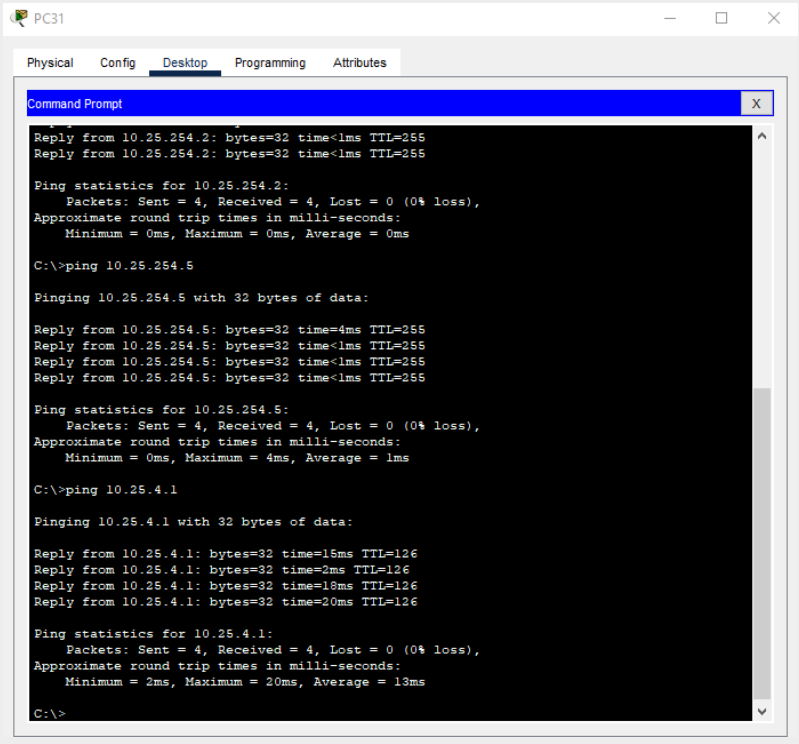
d.1

On configure les routes statiques des interfaces du routeur 2 de sorte à ce qu'il puisse communiquer avec le Routeur 3 pour pouvoir communiquer avec la salle 4. Les pings de la salle 3 passe jusqu'à la salle 4 et inversement.

R20 :
Ip route 0.0.0.0 0.0.0.0 10.25.255.2

R30 :
Ip route 0.0.0.0 0.0.0.0 10.25.255.1

d.2



e) Mise en place du routage entre la salle 1 et la salle 4

e.1

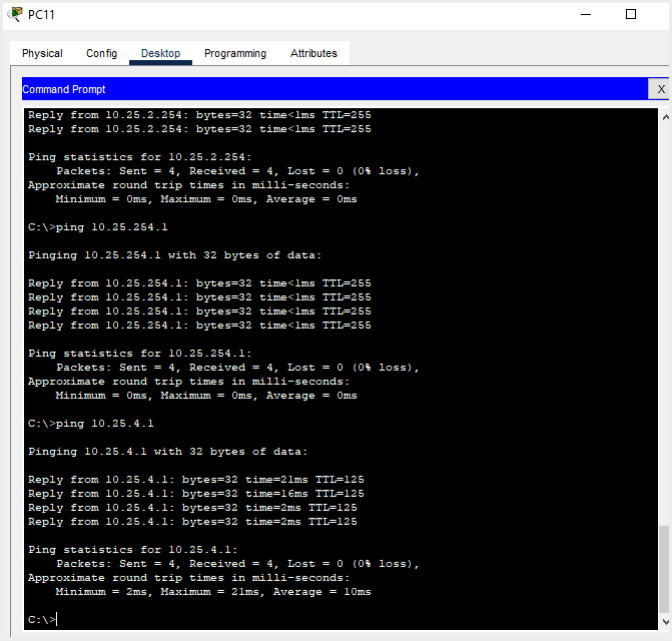
R30 :
Ip route 0.0.0.0 0.0.0.0 10.25.255.1

R20 :
Ip route 0.0.0.0 0.0.0.0 10.25.254.1

e.2

R10 et R30

e.3



Inserez ne capture d'écran montrant les tables de routage du routeur R10, R20 et R30.

```
R10#sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BG
       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, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS in
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 10.25.254.2 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C       10.25.1.0/24 is directly connected, FastEthernet0/0
C       10.25.2.0/24 is directly connected, FastEthernet0/1
C       10.25.254.0/30 is directly connected, Serial0/2/0
S*   0.0.0.0/0 [1/0] via 10.25.254.2

R10#
```

```
R20#sh ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

Gateway of last resort is 10.25.254.1 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C       10.25.3.0/24 is directly connected, FastEthernet0/0
C       10.25.254.0/30 is directly connected, Serial0/2/0
C       10.25.254.4/30 is directly connected, Serial0/0/0
S*   0.0.0.0/0 [1/0] via 10.25.254.1
                [1/0] via 10.25.254.6
```

```
R30#sh ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

Gateway of last resort is 10.25.254.5 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.25.4.0/24 is directly connected, FastEthernet0/0
C       10.25.254.4/30 is directly connected, Serial0/2/0
S*   0.0.0.0/0 [1/0] via 10.25.254.5
```

f) Communication entre PC11 et PC41

f.1

Segment	Adresse MAC source	Adresse MAC destination	Adresse IP source	Adresse IP destination	Champ TTL
Entre PC11 et R10	0001.96AC.1610	000A.412B.1101	10.25.1.1	10.25.1.254	
Entre R10 et R20	X	X	10.25.254.1	10.25.254.1	
Entre R20 et R30	X	X	10.25.255.1	10.25.255.2	
Entre R30 et PC41	0009.7CAB.EC9D	0009.7C40.A046	10.25.4.254	10.25.4.1	

f.2

Les adresses IP vont donc changer contrairement aux adresses MAC qui seront toujours les mêmes.

Placez ici vos réponses commentaires et captures d'écran justifiant votre travail :

4 Mise en place d'un serveur DHCP

4.3 Mise en service

a)

Placez ici vos réponses commentaires et captures d'écran justifiant votre travail :

b)

Placez ici vos réponses commentaires et captures d'écran justifiant votre travail :

c)

Placez ici vos réponses commentaires et captures d'écran justifiant votre travail :

Inserez une capture d'écran montrant les baux actifs sur le routeur R10.