Laboratoire 2 - Rapport complet

Phase 1: Conception (François-Xavier Leclerc)

Commençons par la représentation physique de l'environnement de JRF Entreprises.



Au cœur de notre environnement physique se trouve un élément global représentant l'ensemble de **JRF Entreprises**.

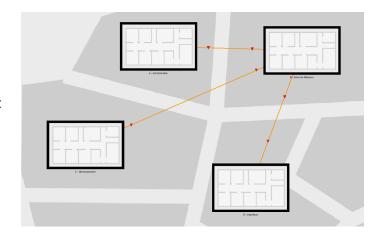
À l'intérieur de cet environnement, nous avons **quatre bâtiments distincts**, chacun correspondant à un département de l'entreprise :

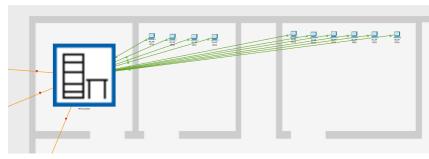
Bâtiment A : Administration

• Bâtiment B : Services Réseaux

• Bâtiment C : Développement

• Bâtiment D : Logistique





Dans chaque bâtiment se trouve une armoire de câblage, ainsi que tous les postes de travail.

Voici l'armoire de câblage pour les bâtiments **A**, **C** et **D**. Elle contient :

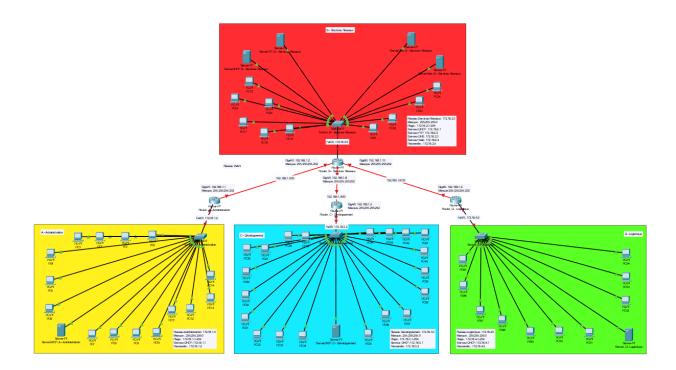
- Une alimentation électrique (Power supply)
- Un **routeur** (PT-Router)
- Un **commutateur** (Switch Cisco 2960)
- Un **serveur DHCP**, pour l'attribution automatique des adresses IP aux ordinateurs et autres équipements





Pour le bâtiment B (**services réseaux**), qui est le centre des opérations du réseau, nous avons quelques serveurs additionnels qui sont essentiels au fonctionnement des services internes :

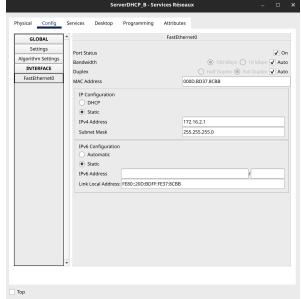
- Un **serveur Web**, pour héberger le site web de l'entreprise.
- Un **serveur FTP**, pour le transfert des fichiers au sein de la compagnie.
- Un **serveur DNS**, pour la résolution des noms de domaines.



Du côté logique, cela est représenté par le schéma visible ci-dessus. La zone rouge représente les services réseaux, au cœur des opérations. La zone jaune est l'administration, la zone bleue, le développement, la zone verte, la logistique. Ce schéma nous montre également le plan d'adressage des équipements.

Phase 2: Configuration LAN (Raphaël Beauregard)

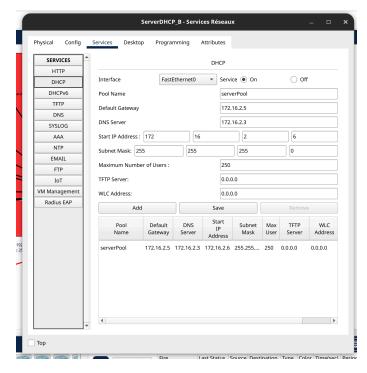




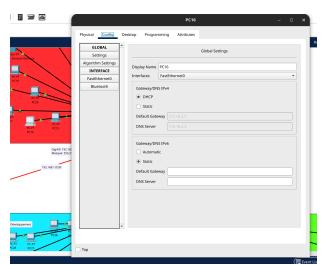
Avec nos plages et adresses IP définies, nous pouvons maintenant configurer chaque serveur individuellement. Il faut aussi activer et définir leurs services. Par exemple, le serveur DHCP offre le service DHCP, et le serveur WEB offre le service HTTP. Il faut répéter l'étape pour le serveur DHCP pour chaque LAN présent dans le WAN.

Configuration DNS pour le serveur WEB:





Maintenant que nos serveurs DHCP sont prêts, nous devons configurer chaque PC ou appareils à utiliser DHCP au lien d'une IP statique.



Nous pouvons tester la connexion DNS et WEB en utilisant le navigateur web d'un PC dans le LAN.

...et maintenant, nous pouvons envoyer un simple PDU () entre deux appareils du même LAN pour tester nos connexions et serveurs.





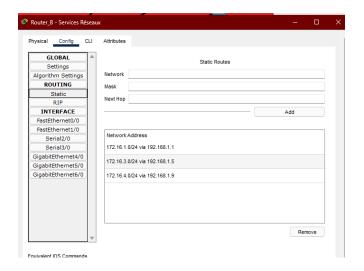
Le serveur FTP, lui, peut être testé avec le CMD d'un PC comme tel:

C:\>ftp 172.16.2.2 Trying to connect...172.16.2.2 Connected to 172.16.2.2 220- Welcome to PT Ftp server Username:

Phase 3: configuration WAN (Justin Saindon)

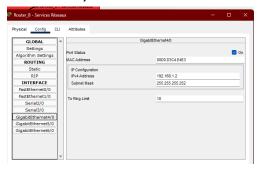
Batiments B: Services Réseaux

Attribution des adresses static réseau inter-routeurs: **Routeur B Masque 255.255.25.0**

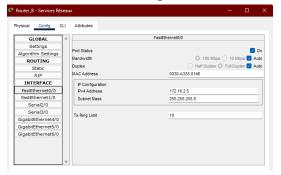


Configuration d'ip et sous masque des ports du routeur B

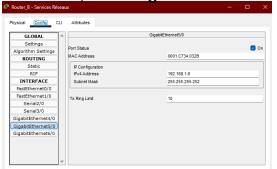
Routeur B; Port: FastEthernet 0/0



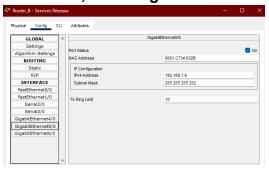
Routeur B; Port: GigabitEtehernet 4/0



Routeur B; Port: GigabitEthernet 5/0

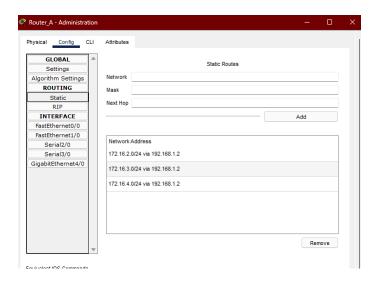


Routeur B; Port: GigabitEthernet 6/0

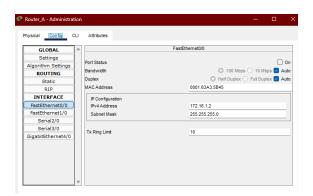


Batiments A: Administration

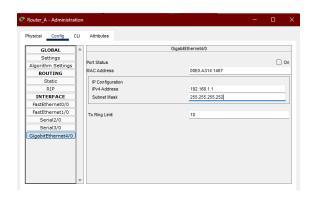
Attribution des adresses static réseau inter-routeurs: **Routeur A Masque 255.255.25**



Routeur A; Port: FastEthernet 0/0



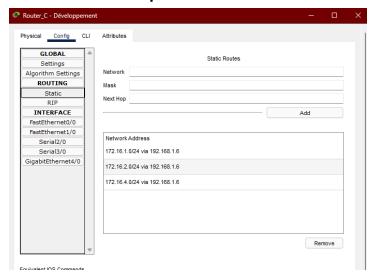
Routeur A; Port: GigabitEthernet 4/0



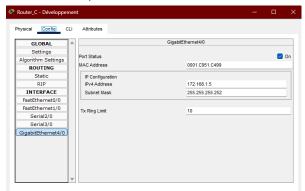
Batiments C: Développement

Attribution des adresses static réseau inter-routeurs: Routeur C

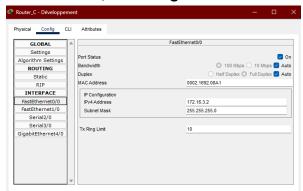
Masque 255.255.25.0



Routeur C; Port: FastEthernet 0/0

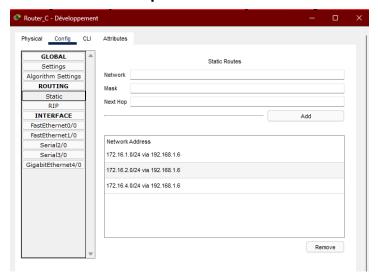


Routeur C; Port: GigabitEthernet 4/0



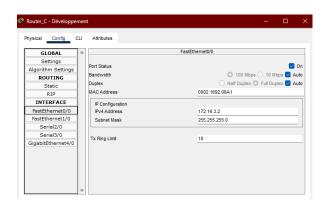
Batiments D: Logistique

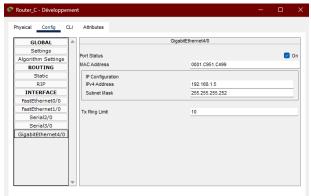
Attribution des adresses static réseau inter-routeurs: **Routeur D Masque 255.255.25**



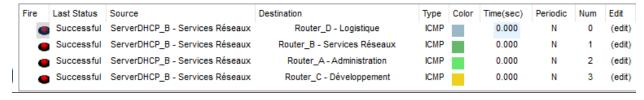
Routeur D; Port: FastEthernet 0/0

Routeur D; Port: GigabitEthernet 4/0





Communication du server DHCP vers les routeur



Communication inter-routeur A vers B,C,D

Fire	Last Status	Source	Destination	Туре	Color	Time(sec)	Periodic	Num	
•	Successful	Router_B - Services Réseaux	Router_A - Administration	ICMP		0.000	N	0	
•	Successful	Router_B - Services Réseaux	Router_C - Développement	ICMP		0.000	N	1	
	Successful	Router_B - Services Réseaux	Router_D - Logistique	ICMP		0.000	N	2	

Communication inter-serveur

Fire	Last Status	Source	Destination	Туре	Color	Time(sec)	Periodic	Num
•	Successful	ServerDHCP_B - Services Réseaux	ServerDHCP_A - Administration	ICMP		0.000	N	0
	Successful	ServerDHCP_B - Services Réseaux	ServerDHCP_C - Développement	ICMP		0.000	N	1
•	Successful	ServerDHCP_B - Services Réseaux	Server_D - Logistique	ICMP		0.000	N	2

Routeur B (Show Ip Route)

```
Router>show 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 not set
    172.16.0.0/24 is subnetted, 4 subnets
s
       172.16.1.0 [1/0] via 192.168.1.1
С
       172.16.2.0 is directly connected, FastEthernet0/0
S
       172.16.3.0 [1/0] via 192.168.1.5
       172.16.4.0 [1/0] via 192.168.1.9
S
    192.168.1.0/30 is subnetted, 3 subnets
C
       192.168.1.0 is directly connected, GigabitEthernet4/0
C
       192.168.1.4 is directly connected, GigabitEthernet5/0
       192.168.1.8 is directly connected, GigabitEthernet6/0
Router>
```

Routeur A (Show Ip Route)

```
Router>Show 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 not set
    172.16.0.0/24 is subnetted, 4 subnets
       172.16.1.0 is directly connected, FastEthernet0/0
       172.16.2.0 [1/0] via 192.168.1.2
S
S
       172.16.3.0 [1/0] via 192.168.1.2
       172.16.4.0 [1/0] via 192.168.1.2
     192.168.1.0/30 is subnetted, 1 subnets
       192.168.1.0 is directly connected, GigabitEthernet4/0
```

Routeur C (Show Ip Route)

```
Router>Show 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 not set
    172.16.0.0/24 is subnetted, 4 subnets
       172.16.1.0 [1/0] via 192.168.1.6
       172.16.2.0 [1/0] via 192.168.1.6
       172.16.3.0 is directly connected, FastEthernet0/0
       172.16.4.0 [1/0] via 192.168.1.6
    192.168.1.0/30 is subnetted, 1 subnets
       192.168.1.4 is directly connected, GigabitEthernet4/0
```

Router>D

Routeur D (Show Ip Route)

```
Router>Show 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 not set
     172.16.0.0/24 is subnetted, 4 subnets
S
       172.16.1.0 [1/0] via 192.168.1.10
S
       172.16.2.0 [1/0] via 192.168.1.10
S
       172.16.3.0 [1/0] via 192.168.1.10
C
       172.16.4.0 is directly connected, FastEthernet0/0
     192.168.1.0/30 is subnetted, 1 subnets
       192.168.1.8 is directly connected, GigabitEthernet4/0
```

Ping Server DHCP B vers DHCP A, C,D | Ping Server DHCP A vers DHCP B, C,

```
C:\>ping 172.16.1.2
Pinging 172.16.1.2 with 32 bytes of data:
Reply from 172.16.1.2: bytes=32 time<1ms TTL=254
Ping statistics for 172.16.1.2:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
   Minimum = Oms, Maximum = Oms, Average = Oms
C:\>ping 172.16.3.0
Pinging 172.16.3.0 with 32 bytes of data:
Reply from 192.168.1.5: bytes=32 time<1ms TTL=254
Ping statistics for 172.16.3.0:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
   Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 172.16.4.2
Pinging 172.16.4.2 with 32 bytes of data:
Reply from 172.16.4.2: bytes=32 time<1ms TTL=254
Ping statistics for 172.16.4.2:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
   Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Boutors

```
Cisco Packet Tracer SERVER Command Line 1.0
C:\>Ping 172.16.2.0
Pinging 172.16.2.0 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=254
Ping statistics for 172.16.2.0:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
   Minimum = Oms, Maximum = Oms, Average = Oms
C:\>ping 172.16.3.0
Pinging 172.16.3.0 with 32 bytes of data:
Reply from 192.168.1.5: bytes=32 time<1ms TTL=253
Reply from 192.168.1.5: bytes=32 time<1ms TTL=253
Reply from 192.168.1.5: bytes=32 time=9ms TTL=253
Reply from 192.168.1.5: bytes=32 time<1ms TTL=253
Ping statistics for 172.16.3.0:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
   Minimum = 0ms, Maximum = 9ms, Average = 2ms
C:\>ping 172.16.4.0
Pinging 172.16.4.0 with 32 bytes of data:
Reply from 192.168.1.9: bytes=32 time<1ms TTL=253
Ping statistics for 172.16.4.0:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
   Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
```

Ping Server DHCP C vers DHCP A,B,D | Ping Server DHCP D vers DHCP A,B,C

```
C:\>Ping 172.16.1.0
:\>ping 172.16.2.0
                                                              Pinging 172.16.1.0 with 32 bytes of data:
Pinging 172.16.2.0 with 32 bytes of data:
                                                              Reply from 192.168.1.1: bytes=32 time=13ms TTL=253
Reply from 192.168.1.6: bytes=32 time<1ms TTL=254
Reply from 192.168.1.6: bytes=32 time<1ms TTL=254
                                                              Reply from 192.168.1.1: bytes=32 time<1ms TTL=253
                                                               Reply from 192.168.1.1: bytes=32 time<1ms TTL=253
Reply from 192.168.1.6: bytes=32 time<1ms TTL=254
eply from 192.168.1.6: bytes=32 time<1ms TTL=254
                                                               Reply from 192.168.1.1: bytes=32 time<1ms TTL=253
Ping statistics for 172.16.2.0:
                                                              Ping statistics for 172.16.1.0:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
                                                                  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
approximate round trip times in milli-seconds:
                                                               Approximate round trip times in milli-seconds:
   Minimum = 0ms, Maximum = 0ms, Average = 0ms
                                                                  Minimum = 0ms, Maximum = 13ms, Average = 3ms
:\>ping 172.16.1.0
                                                               C:\>ping 172.16.2.0
Pinging 172.16.1.0 with 32 bytes of data:
                                                               Pinging 172.16.2.0 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=253
                                                              Reply from 192.168.1.10: bytes=32 time<1ms TTL=254
Reply from 192.168.1.1: bytes=32 time<1ms TTL=253
                                                              Reply from 192.168.1.10: bytes=32 time<1ms TTL=254
Reply from 192.168.1.1: bytes=32 time<1ms TTL=253
                                                               Reply from 192.168.1.10: bytes=32 time<1ms TTL=254
Reply from 192.168.1.1: bytes=32 time<1ms TTL=253
                                                               Reply from 192.168.1.10: bytes=32 time=1ms TTL=254
Ping statistics for 172.16.1.0:
                                                               Ping statistics for 172.16.2.0:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
                                                                  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
approximate round trip times in milli-seconds:
                                                               Approximate round trip times in milli-seconds:
   Minimum = 0ms, Maximum = 0ms, Average = 0ms
                                                                  Minimum = Oms, Maximum = 1ms, Average = Oms
::\>ping 172.16.4.0
                                                               C:\>ping 172.16.3.0
Pinging 172.16.4.0 with 32 bytes of data:
                                                              Pinging 172.16.3.0 with 32 bytes of data:
Reply from 192.168.1.9: bytes=32 time<1ms TTL=253
                                                               Reply from 192.168.1.5: bytes=32 time<1ms TTL=253
Reply from 192.168.1.9: bytes=32 time<1ms TTL=253
                                                               Reply from 192.168.1.5: bytes=32 time<1ms TTL=253
Reply from 192.168.1.9: bytes=32 time<1ms TTL=253
                                                               Reply from 192.168.1.5: bytes=32 time=1ms TTL=253
Reply from 192.168.1.9: bytes=32 time<1ms TTL=253
                                                               Reply from 192.168.1.5: bytes=32 time<1ms TTL=253
Ping statistics for 172.16.4.0:
                                                              Ping statistics for 172.16.3.0:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
approximate round trip times in milli-seconds:
                                                                  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
   Minimum = 0ms, Maximum = 0ms, Average = 0ms
                                                               Approximate round trip times in milli-seconds:
                                                                  Minimum = 0ms, Maximum = 1ms, Average = 0ms
                                                               C:\>
```

Traceroute routeur B vers A

```
Router#traceroute 172.16.1.0
Type escape sequence to abort.
Tracing the route to 172.16.1.0

1 192.168.1.1 0 msec 0 m
```

```
0 msec 0 msec 0 msec
```

Traceroute routeur B vers C

```
Router#traceroute 192.168.1.5

Type escape sequence to abort.

Tracing the route to 192.168.1.5

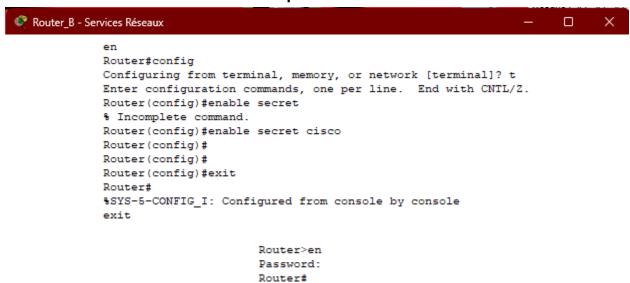
1 192.168.1.5 0 msec 0 msec 0 msec
```

0 msec

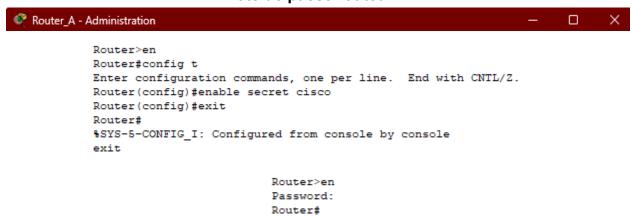
Traceroute routeur B vers D

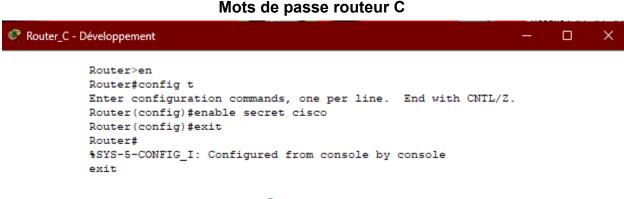
```
Router#traceroute 192.168.1.9
Type escape sequence to abort.
Tracing the route to 192.168.1.9
```

Mots de passe routeur B



Mots de passe routeur A

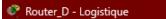




Router>en Password: Router#

Mots de passe routeur D

- 🗆 X



Router*en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#enable secret cisco
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
exit

Router>en Password: Router#

Mot de passe routeurs: Cisco