

# Compte-Rendu TP10 : Routage statique résumée et route par défaut

## 1. Examen des routes statiques

Etape 1 : consultation de la configuration (répété sur les 3 routeurs)

- On se connecte aux routeurs, en utilisant le mot de passe **cisco**, puis on utilise le mot de passe **class** pour passer en mode privilégié à partir de la commande **en**.

```
User Access Verification
```

```
Password:
```

```
Password:
```

```
R1>en
```

```
Password:
```

```
R1#
```

```
User Access Verification
```

```
Password:
```

```
R2>en
```

```
Password:
```

```
R2#
```

```
User Access Verification
```

```
Password:
```

```
R3>en
```

```
Password:
```

```
Password:
```

```
R3#
```

- On entre la commande **show running-conf** pour connaître le mode de configuration actuel du routage statique.

```

interface FastEthernet0/0
 ip address 172.16.3.1 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial0/0/0
 ip address 172.16.2.1 255.255.255.0
 clock rate 64000
!
interface Serial0/0/1
 no ip address
 clock rate 2000000
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
ip route 172.16.1.0 255.255.255.0 Serial0/0/0
ip route 192.168.1.0 255.255.255.0 Serial0/0/0
ip route 192.168.2.0 255.255.255.0 Serial0/0/0

```

- On saisit la commande **sh ip route** pour constater l'effet de cette configuration.

```

R1#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 not set

    172.16.0.0/24 is subnetted, 3 subnets
S       172.16.1.0 is directly connected, Serial0/0/0
C       172.16.2.0 is directly connected, Serial0/0/0
C       172.16.3.0 is directly connected, FastEthernet0/0
S       192.168.1.0/24 is directly connected, Serial0/0/0
S       192.168.2.0/24 is directly connected, Serial0/0/0

```

## Etape 2 : vérification de la connectivité

- On ping PC2 et PC3 depuis PC1, les pings fonctionnent.

```
C:\>ping 172.16.1.10

Pinging 172.16.1.10 with 32 bytes of data:

Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
Reply from 172.16.1.10: bytes=32 time=7ms TTL=126

Ping statistics for 172.16.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 7ms, Average = 2ms
```

```
C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time=2ms TTL=125

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 2ms, Average = 2ms
```

- On ping PC1 et PC3 depuis PC2, les pings fonctionnent.

```
C:\>ping 172.16.3.10

Pinging 172.16.3.10 with 32 bytes of data:

Reply from 172.16.3.10: bytes=32 time=9ms TTL=126
Reply from 172.16.3.10: bytes=32 time=5ms TTL=126
Reply from 172.16.3.10: bytes=32 time=1ms TTL=126
Reply from 172.16.3.10: bytes=32 time=2ms TTL=126

Ping statistics for 172.16.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 9ms, Average = 4ms
```

```
C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time=2ms TTL=126
Reply from 192.168.2.10: bytes=32 time=1ms TTL=126
Reply from 192.168.2.10: bytes=32 time=1ms TTL=126
Reply from 192.168.2.10: bytes=32 time=2ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

- On ping PC1 et PC2 depuis PC3, les pings fonctionnent.

```
C:\>ping 172.16.3.10

Pinging 172.16.3.10 with 32 bytes of data:

Reply from 172.16.3.10: bytes=32 time=3ms TTL=125
Reply from 172.16.3.10: bytes=32 time=2ms TTL=125
Reply from 172.16.3.10: bytes=32 time=2ms TTL=125
Reply from 172.16.3.10: bytes=32 time=2ms TTL=125

Ping statistics for 172.16.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 3ms, Average = 2ms
```

```
C:\>ping 172.16.1.10

Pinging 172.16.1.10 with 32 bytes of data:

Reply from 172.16.1.10: bytes=32 time=2ms TTL=126
Reply from 172.16.1.10: bytes=32 time=9ms TTL=126
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126

Ping statistics for 172.16.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 9ms, Average = 3ms
```

## 2. Résumé des routes statiques

Etape 1 : remplacement des routes statiques existante par une route résumée

- On passe en mode configuration sur R3 en utilisant la commande **conf t**, puis on entre les commandes suivantes afin de supprimer les routes statiques existantes par une route résumée.

```
R3(config)#no ip route 172.16.1.0 255.255.255.0 s0/0/1
R3(config)#no ip route 172.16.2.0 255.255.255.0 s0/0/1
R3(config)#no ip route 172.16.3.0 255.255.255.0 s0/0/1
R3(config)#ip route 172.16.0.0 255.255.252.0 192.168.1.2
```

Etape 2 : enregistrement des configurations mises à jour

- On quitte le mode configuration avec **CTRL+Z** et on enregistre les modifications grâce à la commande **copy run start**.

```
R3(config)#^Z
R3#
%SYS-5-CONFIG_I: Configured from console by console

R3#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

### Etape 3 : consultation de la configuration

- Toujours sur R3, on va saisir la commande **sh run** pour connaître le mode de configuration du routage statique.

```
interface FastEthernet0/1
  mac-address 0006.2a91.d285
  no ip address
  duplex auto
  speed auto
  shutdown
!
interface Serial10/0/0
  no ip address
  clock rate 2000000
!
interface Serial10/0/1
  ip address 192.168.1.1 255.255.255.0
!
interface Vlan1
  no ip address
  shutdown
!
ip classless
ip route 172.16.0.0 255.255.252.0 192.168.1.2
!
ip flow-export version 9
!
!
```

- On entre la commande **show ip route** pour examiner l'effet de la configuration modifiée.

```
R3#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

    172.16.0.0/22 is subnetted, 1 subnets
S       172.16.0.0 [1/0] via 192.168.1.2
C       192.168.1.0/24 is directly connected, Serial10/0/1
C       192.168.2.0/24 is directly connected, FastEthernet0/0
```

### Etape 4 : vérification de la connectivité

- On va ping PC1 et PC2 depuis PC3 pour s'assurer qu'ils soient bien connectés. Les pings fonctionnent.

```

C:\>ping 172.16.3.10

Pinging 172.16.3.10 with 32 bytes of data:

Reply from 172.16.3.10: bytes=32 time=2ms TTL=125
Reply from 172.16.3.10: bytes=32 time=2ms TTL=125
Reply from 172.16.3.10: bytes=32 time=12ms TTL=125
Reply from 172.16.3.10: bytes=32 time=2ms TTL=125

Ping statistics for 172.16.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 12ms, Average = 4ms

C:\>ping 172.16.1.10

Pinging 172.16.1.10 with 32 bytes of data:

Reply from 172.16.1.10: bytes=32 time=10ms TTL=126
Reply from 172.16.1.10: bytes=32 time=5ms TTL=126
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
Reply from 172.16.1.10: bytes=32 time=6ms TTL=126

Ping statistics for 172.16.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 10ms, Average = 5ms

```

### 3. Configuration d'un réseau d'extrémité

Etape 1 : remplacement des routes statiques existantes par une route statique par défaut

- Cette fois-ci, on va se placer sur R1, passer en mode configuration avec la commande **conf t**, puis, remplacer toutes ses routes statiques existantes pour les remplacer par une route par défaut.

```

R1(config)#no ip route 172.16.1.0 255.255.255.0 s0/0/0
R1(config)#no ip route 192.168.1.0 255.255.255.0 s0/0/0
R1(config)#no ip route 192.168.2.0 255.255.255.0 s0/0/0
R1(config)#ip route 0.0.0.0 0.0.0.0 172.16.2.2

```

Etape 2 : enregistrement des configurations mises à jour

- On quitte le mode configuration sur R1 avec **CTRL+Z**, puis, on enregistre les modifications en saisissant la commande **copy run start**.

```

R1(config)#^Z
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]

```

Etape 3 : consultation de la configuration

- Même opération que sur R3, on va saisir la commande **show running-config** pour connaître le mode de configuration actuel du routage statique de R1.

```
interface FastEthernet0/0
ip address 172.16.3.1 255.255.255.0
duplex auto
speed auto
!
interface FastEthernet0/1
no ip address
duplex auto
speed auto
shutdown
!
interface Serial0/0/0
ip address 172.16.2.1 255.255.255.0
clock rate 64000
!
interface Serial0/0/1
no ip address
clock rate 2000000
!
interface Vlan1
no ip address
shutdown
!
ip classless
ip route 0.0.0.0 0.0.0.0 172.16.2.2
!
```

- Ensuite, on entre la commande **show ip route** pour examiner l'effet de la configuration modifiée.

```
R1#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 172.16.2.2 to network 0.0.0.0

    172.16.0.0/24 is subnetted, 2 subnets
C       172.16.2.0 is directly connected, Serial0/0/0
C       172.16.3.0 is directly connected, FastEthernet0/0
S*    0.0.0.0/0 [1/0] via 172.16.2.2
```

#### Etape 4 : vérification de la connectivité

- Pour finir, on va ping PC2 et PC3 depuis PC1, pour vérifier leur connectivité. Les pings fonctionnent.

```
C:\>ping 172.16.1.10
```

```
Pinging 172.16.1.10 with 32 bytes of data:
```

```
Reply from 172.16.1.10: bytes=32 time=2ms TTL=126
```

```
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
```

```
Reply from 172.16.1.10: bytes=32 time=2ms TTL=126
```

```
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
```

```
Ping statistics for 172.16.1.10:
```

```
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

```
Approximate round trip times in milli-seconds:
```

```
    Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

```
C:\>ping 192.168.2.10
```

```
Pinging 192.168.2.10 with 32 bytes of data:
```

```
Reply from 192.168.2.10: bytes=32 time=2ms TTL=125
```

```
Reply from 192.168.2.10: bytes=32 time=3ms TTL=125
```

```
Reply from 192.168.2.10: bytes=32 time=2ms TTL=125
```

```
Reply from 192.168.2.10: bytes=32 time=12ms TTL=125
```

```
Ping statistics for 192.168.2.10:
```

```
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

```
Approximate round trip times in milli-seconds:
```

```
    Minimum = 2ms, Maximum = 12ms, Average = 4ms
```