

TP7: Route statique résumée et route par défaut

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1. Examen des routes statiques.

Je suis sur le routeur 2, je me suis connecté en utilisant le mot de passe (cisco) et je suis passé en mode d'exécution privilégié (en) et j'ai rentré le mot de passe (class).

```
Password:
R2>en
Password:
R2#sh run
Building configuration...
```

J'ai entré la commande (sh run) pour voir la configuration actuelle du routage statique qui est :

```
ip classless
ip route 172.16.3.0 255.255.255.0 Serial0/0/0
ip route 192.168.2.0 255.255.255.0 Serial0/0/1
```

j'ai accédé à la table de routage grâce à la commande (show ip route) :

```
R2#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
C       172.16.1.0 is directly connected, FastEthernet0/0
C       172.16.2.0 is directly connected, Serial0/0/0
S       172.16.3.0 is directly connected, Serial0/0/0
C     192.168.1.0/24 is directly connected, Serial0/0/1
S     192.168.2.0/24 is directly connected, Serial0/0/1
```

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ETAPE 2 : Vérification de la connectivité

Je suis PC 2 et je ping PC 1 et PC 3 :

PC 1 →

```
C:\>ping 172.16.3.10

Pinging 172.16.3.10 with 32 bytes of data:

Request timed out.
Reply from 172.16.3.10: bytes=32 time=4ms TTL=126
Reply from 172.16.3.10: bytes=32 time=1ms TTL=126
Reply from 172.16.3.10: bytes=32 time=7ms TTL=126

Ping statistics for 172.16.3.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 7ms, Average = 4ms
```

PC 3 →

```
C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.10: bytes=32 time=7ms TTL=126
Reply from 192.168.2.10: bytes=32 time=2ms TTL=126
Reply from 192.168.2.10: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 7ms, Average = 3ms
```

Je suis PC 1 et je ping PC 2 et PC 3 :

PC 2 →

```
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=8ms 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=4ms 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 = 8ms, Average = 3ms
```

PC 3 →

```
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=9ms TTL=125
Reply from 192.168.2.10: bytes=32 time=10ms TTL=125
Reply from 192.168.2.10: bytes=32 time=9ms TTL=125
Reply from 192.168.2.10: bytes=32 time=6ms 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 = 6ms, Maximum = 10ms, Average = 8ms
```

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Je suis PC 3 et je ping PC 1 et PC 2 :

PC 1 →

```
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=7ms TTL=125
Reply from 172.16.3.10: bytes=32 time=7ms TTL=125
Reply from 172.16.3.10: bytes=32 time=6ms 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 = 7ms, Average = 5ms
```

PC 2 →

```
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=2ms TTL=126
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
Reply from 172.16.1.10: bytes=32 time=4ms 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 = 4ms, Average = 2ms
```

TP7: Route statique résumée et route par défaut

2. Résumé des routes statiques (routeur R3).

Etape 1 : remplacement des routes statiques existantes par une route résumée (agrégée)

```
R3#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 [1/0] via 192.168.1.2
S    172.16.2.0 [1/0] via 192.168.1.2
S    172.16.3.0 [1/0] via 192.168.1.2
C    192.168.1.0/24 is directly connected, Serial0/0/1
C    192.168.2.0/24 is directly connected, FastEthernet0/0

R3#no ip route 172.16.1.0 255.255.255.0 192.168.1.2
^
% Invalid input detected at '^' marker.

R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#no ip route 172.16.1.0 255.255.255.0 192.168.1.2
R3(config)#no ip route 172.16.2.0 255.255.255.0 192.168.1.2
R3(config)#no ip route 172.16.3.0 255.255.255.0 192.168.1.2
R3(config)#no ip route 172.16.0.0 255.255.252.0 192.168.1.2
%No matching route to delete
R3(config)#ip route 172.16.0.0 255.255.252.0 192.168.1.2
R3(config)#sh ip route
^
% Invalid input detected at '^' marker.

R3(config)#^Z
R3#
!SYS-5-CONFIG-I: Configured from console by console
copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
R3#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

172.16.0.0/22 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, Serial0/0/1
C    192.168.2.0/24 is directly connected, FastEthernet0/0

R3#
```

TP7: Route statique résumée et route par défaut

J'ai vérifié la nouvelle configuration du routage statique

```
ip classless
ip route 172.16.0.0 255.255.252.0 192.168.1.2
```

Etape 4 : vérification de la connectivité :

Je suis PC 3 et j'ai ping le PC 1 et le PC 2 :

Ping du PC 1 →

```
C:\>ping 172.16.3.10

Pinging 172.16.3.10 with 32 bytes of data:

Request timed out.
Reply from 172.16.3.10: bytes=32 time=6ms TTL=125
Reply from 172.16.3.10: bytes=32 time=8ms TTL=125
Reply from 172.16.3.10: bytes=32 time=10ms TTL=125

Ping statistics for 172.16.3.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 10ms, Average = 8ms
```

Ping du PC 2 →

```
C:\>ping 172.16.1.1

Pinging 172.16.1.1 with 32 bytes of data:

Reply from 172.16.1.1: bytes=32 time=7ms TTL=254
Reply from 172.16.1.1: bytes=32 time=5ms TTL=254
Reply from 172.16.1.1: bytes=32 time=5ms TTL=254
Reply from 172.16.1.1: bytes=32 time=1ms TTL=254

Ping statistics for 172.16.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 7ms, Average = 4ms
```

TP7: Route statique résumée et route par défaut

3. Configuration d'un réseau d'extrémité (routeur R1).

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

En suivant les instructions j'ai remplacé les routes existantes par une route par défaut et enregistré la configuration :

```
R1>en
Password:
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#no ip route 172.16.1.0 255.255.255.0 172.16.2.2
R1(config)#no ip route 192.168.1.0 255.255.255.0 172.16.2.2
R1(config)#no ip route 192.168.2.0 255.255.255.0 172.16.2.2
R1(config)#ip route 0.0.0.0 0.0.0.0 172.16.2.2
R1(config)#^Z
R1#
%SYS-5-CONFIG_I: Configured from console by console
copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

Etape 3 : consultation de la configuration

Capture de la nouvelle configuration

```
ip classless
ip route 0.0.0.0 0.0.0.0 172.16.2.2
```

Capture de la table de routage modifiée

```
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 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, Serial10/0/0
C       172.16.3.0 is directly connected, FastEthernet0/0
S*    0.0.0.0/0 [1/0] via 172.16.2.2
```

TP7: Route statique résumée et route par défaut

Etape 4 : vérification de la connectivité

Je suis PC 1 et j'ai ping PC 2 et PC 3 :

Ping du PC 2

```
C:\>ping 172.16.1.10

Pinging 172.16.1.10 with 32 bytes of data:

Request timed out.
Reply from 172.16.1.10: bytes=32 time=4ms 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 = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 4ms, Average = 2ms
```

Ping du PC 3

```
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=9ms TTL=125
Reply from 192.168.2.10: bytes=32 time=5ms TTL=125
Reply from 192.168.2.10: bytes=32 time=6ms TTL=125
Reply from 192.168.2.10: bytes=32 time=6ms 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 = 5ms, Maximum = 9ms, Average = 6ms
```