

TP6

1. Visualisation de la table de routage

Commande : R11>**sh ip route**

```
R11>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

10.0.0.0/24 is subnetted, 2 subnets
C      10.0.8.0 is directly connected, FastEthernet0/0
C      10.0.11.0 is directly connected, FastEthernet0/1
```

PC11 → Desktop (Bureau) → Command Prompt (Invite de commande)

PC>ping 10.0.11.1 (R11 côté réseau 11)

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.0.11.1

Pinging 10.0.11.1 with 32 bytes of data:

Reply from 10.0.11.1: bytes=32 time=1ms TTL=255
Reply from 10.0.11.1: bytes=32 time<1ms TTL=255
Reply from 10.0.11.1: bytes=32 time<1ms TTL=255
Reply from 10.0.11.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.0.11.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

PC>ping 10.0.8.11 (11 côté réseau 8)

```
C:\>ping 10.0.8.11

Pinging 10.0.8.11 with 32 bytes of data:

Reply from 10.0.8.11: bytes=32 time<1ms TTL=255
Reply from 10.0.8.11: bytes=32 time<1ms TTL=255
Reply from 10.0.8.11: bytes=32 time<1ms TTL=255
Reply from 10.0.8.11: bytes=32 time<1ms TTL=255

Ping statistics for 10.0.8.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC> ping 10.0.8.12 (R12 côté réseau 8)

```
C:\>ping 10.0.8.12

Pinging 10.0.8.12 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.0.8.12:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

« Aller » passe, mais le « retour » ne passe pas car R12 ne connaît pas le réseau 11 auquel appartient 11.2 (PC11)
Il faut que R12 transmette à R11

2. Ajout d'une route statique sur R12

R12 → CLI → R12>

R12>en

```
R12>en
R12#
```

R12# conf t

```
R12# conf t
Enter configuration commands, one per line. End with CNTL/Z.
R12(config)#
```

```
R12(config)# ip route 10.0.11.0 255.255.255.0 10.0.8.11
```

```
R12#sh ip route
```

```
R12#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

    10.0.0.0/24 is subnetted, 3 subnets
C       10.0.8.0 is directly connected, FastEthernet0/0
S       10.0.11.0 [1/0] via 10.0.8.11
C       10.0.12.0 is directly connected, FastEthernet0/1
```

```
R12# sh run
```

```
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 10.0.8.12 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 10.0.12.1 255.255.255.0
 duplex auto
 speed auto
!
interface Vlan1
 no ip address
 shutdown
!
router rip
!
 ip classless
 ip route 10.0.11.0 255.255.255.0 10.0.8.11
```

```
R12#sh ip route
```

```
R12#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

    10.0.0.0/24 is subnetted, 3 subnets
C       10.0.8.0 is directly connected, FastEthernet0/0
S       10.0.11.0 [1/0] via 10.0.8.11
C       10.0.12.0 is directly connected, FastEthernet0/1
```

R12#copy run start

```
R12#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
R12#
```

3. Ajout d'une route statique sur R11

PC11 → Desktop → Command Prompt

PC>ping 10.0.8.12

```
C:\>ping 10.0.8.12

Pinging 10.0.8.12 with 32 bytes of data:

Request timed out.
Reply from 10.0.8.12: bytes=32 time<1ms TTL=254
Reply from 10.0.8.12: bytes=32 time<1ms TTL=254
Reply from 10.0.8.12: bytes=32 time<1ms TTL=254

Ping statistics for 10.0.8.12:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC>ping 10.0.12.1

```
C:\>ping 10.0.12.1

Pinging 10.0.12.1 with 32 bytes of data:

Reply from 10.0.11.1: Destination host unreachable.
Reply from 10.0.11.1: Destination host unreachable.
Reply from 10.0.11.1: Destination host unreachable.
Reply from 10.0.11.1: Destination host unreachable.

Ping statistics for 10.0.12.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

R11 → CLI

```
R11>en
R11#conf t
R11(config)# ip route 10.0.12.0 255.255.255.0 10.0.8.12

R11#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R11(config)#no ip route 10.0.12.0 255.255.255.255 10.0.8.12
R11(config)#ip route 10.0.12.0 255.255.255.0 10.0.8.12
R11(config)#exit
R11#
%SYS-5-CONFIG_I: Configured from console by console

R11#s ip route
% Ambiguous command: "s ip route"
R11#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

      10.0.0.0/24 is subnetted, 3 subnets
C       10.0.8.0 is directly connected, FastEthernet0/0
C       10.0.11.0 is directly connected, FastEthernet0/1
S       10.0.12.0 [1/0] via 10.0.8.12

R11#
```

PC11

```
PC>ping 10.0.12.1
```

```
C:\>ping 10.0.12.1

Pinging 10.0.12.1 with 32 bytes of data:

Reply from 10.0.12.1: bytes=32 time<1ms TTL=254
Reply from 10.0.12.1: bytes=32 time<1ms TTL=254
Reply from 10.0.12.1: bytes=32 time<1ms TTL=254
Reply from 10.0.12.1: bytes=32 time<1ms TTL=254

Ping statistics for 10.0.12.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

4. à vous de jouer

PC21 → PC22

R22 → CLI → R22>

```
R22>en
R22#sh ip route
```

```
R22#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

10.0.0.0/24 is subnetted, 2 subnets
C       10.0.16.0 is directly connected, FastEthernet0/0
C       10.0.22.0 is directly connected, FastEthernet0/1
```

```
R22(config)#ip route 10.0.21.0 255.255.255.0 10.0.16.21
```

```
R22#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R22(config)#ip route 10.0.21.0 255.255.255.0 10.0.16.21
R22(config)#exit
R22#
%SYS-5-CONFIG_I: Configured from console by console

R22#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

10.0.0.0/24 is subnetted, 3 subnets
C       10.0.16.0 is directly connected, FastEthernet0/0
S       10.0.21.0 [1/0] via 10.0.16.21
C       10.0.22.0 is directly connected, FastEthernet0/1
```

R21 → CLI → R21>

```
R21>en
R21(config)#ip route 10.0.22.0 255.255.255.0 10.0.16.22
```

```
R21#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R21(config)#ip route 10.0.22.0 255.255.255.0 10.0.16.22
R21(config)#exit
R21#
%SYS-5-CONFIG_I: Configured from console by console

R21#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

    10.0.0.0/24 is subnetted, 3 subnets
C       10.0.16.0 is directly connected, FastEthernet0/0
C       10.0.21.0 is directly connected, FastEthernet0/1
S       10.0.22.0 [1/0] via 10.0.16.22
```

PC21

PC> ping 10.0.22.1

```
C:\>ping 10.0.22.1

Pinging 10.0.22.1 with 32 bytes of data:

Reply from 10.0.22.1: bytes=32 time<1ms TTL=254
Reply from 10.0.22.1: bytes=32 time<1ms TTL=254
Reply from 10.0.22.1: bytes=32 time<1ms TTL=254
Reply from 10.0.22.1: bytes=32 time<1ms TTL=254

Ping statistics for 10.0.22.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Connectivité générale

PC11

PC11 → PC21

```
R11#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R11(config)#ip route 10.0.21.0 255.255.255.0 10.0.8.8
R11(config)#exit
R11#
%SYS-5-CONFIG_I: Configured from console by console

R11#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

      10.0.0.0/24 is subnetted, 4 subnets
C       10.0.8.0 is directly connected, FastEthernet0/0
C       10.0.11.0 is directly connected, FastEthernet0/1
S       10.0.12.0 [1/0] via 10.0.8.12
S       10.0.21.0 [1/0] via 10.0.8.8
```

PC11 → PC22

```
R11>en
R11#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R11(config)#ip route 10.0.22.0 255.255.255.0 10.0.8.8
R11(config)#exit
R11#
%SYS-5-CONFIG_I: Configured from console by console

R11#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

      10.0.0.0/24 is subnetted, 5 subnets
C       10.0.8.0 is directly connected, FastEthernet0/0
C       10.0.11.0 is directly connected, FastEthernet0/1
S       10.0.12.0 [1/0] via 10.0.8.12
S       10.0.21.0 [1/0] via 10.0.8.8
S       10.0.22.0 [1/0] via 10.0.8.8
```

R8

R8 → PC11

```
R8#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R8(config)#ip route 10.0.11.0 255.255.255.0 10.0.8.11
R8(config)#exit
R8#
%SYS-5-CONFIG_I: Configured from console by console

R8#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

      10.0.0.0/24 is subnetted, 4 subnets
C       10.0.1.0 is directly connected, FastEthernet0/0
C       10.0.2.0 is directly connected, Serial0/0/0
C       10.0.8.0 is directly connected, FastEthernet0/1
S       10.0.11.0 [1/0] via 10.0.8.11
```

R8 → PC12

```
R8#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R8(config)#ip route 10.0.12.0 255.255.255.0 10.0.8.12
R8(config)#exit
R8#
%SYS-5-CONFIG_I: Configured from console by console

R8#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

      10.0.0.0/24 is subnetted, 5 subnets
C       10.0.1.0 is directly connected, FastEthernet0/0
C       10.0.2.0 is directly connected, Serial0/0/0
C       10.0.8.0 is directly connected, FastEthernet0/1
S       10.0.11.0 [1/0] via 10.0.8.11
S       10.0.12.0 [1/0] via 10.0.8.12
```

R8 → PC21

```
R8#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R8(config)#ip route 10.0.21.0 255.255.255.0 10.0.1.16
R8(config)#exit
R8#
%SYS-5-CONFIG_I: Configured from console by console

R8#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

      10.0.0.0/24 is subnetted, 6 subnets
C      10.0.1.0 is directly connected, FastEthernet0/0
C      10.0.2.0 is directly connected, Serial0/0/0
C      10.0.8.0 is directly connected, FastEthernet0/1
S      10.0.11.0 [1/0] via 10.0.8.11
S      10.0.12.0 [1/0] via 10.0.8.12
S      10.0.21.0 [1/0] via 10.0.1.16
```

R8 → PC22

```
R8#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R8(config)#ip route 10.0.22.0 255.255.255.0 10.0.1.16
R8(config)#exit
R8#
%SYS-5-CONFIG_I: Configured from console by console

R8#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

      10.0.0.0/24 is subnetted, 7 subnets
C      10.0.1.0 is directly connected, FastEthernet0/0
C      10.0.2.0 is directly connected, Serial0/0/0
C      10.0.8.0 is directly connected, FastEthernet0/1
S      10.0.11.0 [1/0] via 10.0.8.11
S      10.0.12.0 [1/0] via 10.0.8.12
S      10.0.21.0 [1/0] via 10.0.1.16
S      10.0.22.0 [1/0] via 10.0.1.16
```

PC12

PC12 → PC21

```
R12>en
R12#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R12(config)#ip route 10.0.21.0 255.255.255.0 10.0.8.8
R12(config)#exit
R12#
%SYS-5-CONFIG_I: Configured from console by console

R12#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

      10.0.0.0/24 is subnetted, 4 subnets
C       10.0.8.0 is directly connected, FastEthernet0/0
S       10.0.11.0 [1/0] via 10.0.8.11
C       10.0.12.0 is directly connected, FastEthernet0/1
S       10.0.21.0 [1/0] via 10.0.8.8
```

PC12 → PC22

```
R12#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R12(config)#ip route 10.0.22.0 255.255.255.0 10.0.8.8
R12(config)#exit
R12#
%SYS-5-CONFIG_I: Configured from console by console

R12#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

      10.0.0.0/24 is subnetted, 5 subnets
C       10.0.8.0 is directly connected, FastEthernet0/0
S       10.0.11.0 [1/0] via 10.0.8.11
C       10.0.12.0 is directly connected, FastEthernet0/1
S       10.0.21.0 [1/0] via 10.0.8.8
S       10.0.22.0 [1/0] via 10.0.8.8
```

PC21

PC21 → PC11

```
R21>en
R21#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R21(config)#ip route 10.0.11.0 255.255.255.0 10.0.16.16
R21(config)#exit
R21#
%SYS-5-CONFIG_I: Configured from console by console

R21#en
R21#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

      10.0.0.0/24 is subnetted, 4 subnets
S       10.0.11.0 [1/0] via 10.0.16.16
C       10.0.16.0 is directly connected, FastEthernet0/0
C       10.0.21.0 is directly connected, FastEthernet0/1
S       10.0.22.0 [1/0] via 10.0.16.22
```

PC21 → PC12

```
R21#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R21(config)#ip route 10.0.12.0 255.255.255.0 10.0.16.16
R21(config)#exit
R21#
%SYS-5-CONFIG_I: Configured from console by console

R21#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

      10.0.0.0/24 is subnetted, 5 subnets
S       10.0.11.0 [1/0] via 10.0.16.16
S       10.0.12.0 [1/0] via 10.0.16.16
C       10.0.16.0 is directly connected, FastEthernet0/0
C       10.0.21.0 is directly connected, FastEthernet0/1
S       10.0.22.0 [1/0] via 10.0.16.22
```

R16

R16 → PC11

```
R16>en
R16#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R16(config)#ip route 10.0.11.0 255.255.255.0 10.0.1.8
R16(config)#exit
R16#
%SYS-5-CONFIG_I: Configured from console by console

R16#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

      10.0.0.0/24 is subnetted, 4 subnets
C       10.0.1.0 is directly connected, FastEthernet0/0
C       10.0.2.0 is directly connected, Serial0/0/0
S       10.0.11.0 [1/0] via 10.0.1.8
C       10.0.16.0 is directly connected, FastEthernet0/1
```

R16 → PC12

```
R16#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R16(config)#10.0.12.0 255.255.255.0 10.0.1.8
      ^
% Invalid input detected at '^' marker.

R16(config)#ip route 10.0.12.0 255.255.255.0 10.0.1.8
R16(config)#exit
R16#
%SYS-5-CONFIG_I: Configured from console by console

R16#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

      10.0.0.0/24 is subnetted, 5 subnets
C       10.0.1.0 is directly connected, FastEthernet0/0
C       10.0.2.0 is directly connected, Serial0/0/0
S       10.0.11.0 [1/0] via 10.0.1.8
S       10.0.12.0 [1/0] via 10.0.1.8
C       10.0.16.0 is directly connected, FastEthernet0/1
```

R16 → PC21

```
R16#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R16(config)#ip route 10.0.21.0 255.255.255.0 10.0.16.21
R16(config)#exit
R16#
%SYS-5-CONFIG_I: Configured from console by console

R16#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

      10.0.0.0/24 is subnetted, 6 subnets
C       10.0.1.0 is directly connected, FastEthernet0/0
C       10.0.2.0 is directly connected, Serial0/0/0
S       10.0.11.0 [1/0] via 10.0.1.8
S       10.0.12.0 [1/0] via 10.0.1.8
C       10.0.16.0 is directly connected, FastEthernet0/1
S       10.0.21.0 [1/0] via 10.0.16.21
```

R16 → PC22

```
R16#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R16(config)#ip route 10.0.22.0 255.255.255.0 10.0.16.22
R16(config)#exit
R16#
%SYS-5-CONFIG_I: Configured from console by console

R16#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

      10.0.0.0/24 is subnetted, 7 subnets
C       10.0.1.0 is directly connected, FastEthernet0/0
C       10.0.2.0 is directly connected, Serial0/0/0
S       10.0.11.0 [1/0] via 10.0.1.8
S       10.0.12.0 [1/0] via 10.0.1.8
C       10.0.16.0 is directly connected, FastEthernet0/1
S       10.0.21.0 [1/0] via 10.0.16.21
S       10.0.22.0 [1/0] via 10.0.16.22
```

PC22

PC22 → PC11

```
R22#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R22(config)#ip route 10.0.11.0 255.255.255.0 10.0.16.16
R22(config)#exit
R22#
%SYS-5-CONFIG_I: Configured from console by console

R22#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

      10.0.0.0/24 is subnetted, 4 subnets
S       10.0.11.0 [1/0] via 10.0.16.16
C       10.0.16.0 is directly connected, FastEthernet0/0
S       10.0.21.0 [1/0] via 10.0.16.21
C       10.0.22.0 is directly connected, FastEthernet0/1
```

PC22 → PC11

```
R22#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R22(config)#ip route 10.0.12.0 255.255.255.0 10.0.16.16
R22(config)#exit
R22#
%SYS-5-CONFIG_I: Configured from console by console

R22#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

      10.0.0.0/24 is subnetted, 5 subnets
S       10.0.11.0 [1/0] via 10.0.16.16
S       10.0.12.0 [1/0] via 10.0.16.16
C       10.0.16.0 is directly connected, FastEthernet0/0
S       10.0.21.0 [1/0] via 10.0.16.21
C       10.0.22.0 is directly connected, FastEthernet0/1
```