**Router 0**

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

Router(config-router)#exit

Router(config)#router ospf 1

Router(config-router)#network 192.25.0.4 0.0.0.3 area 0

Router(config-router)#network 192.25.0.0 0.0.0.3 area 0

Router(config-router)#exit

Router(config)#exit

Router#

%SYS-5-CONFIG\_I: Configured from console by console

Router#copy run start

Destination filename [startup-config]?

Building configuration...

[OK]

Router#

00:57:19: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.2.5 on Serial2/0 from LOADING to FULL, Loading Done

00:59:12: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.2.9 on Serial3/0 from LOADING to FULL, Loading Done

Router#sow ip route

^

% Invalid input detected at '^' marker.

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

O IA 25.0.0.0/8 [110/65] via 192.25.0.1, 00:02:23, Serial2/0

O IA 26.0.0.0/8 [110/65] via 192.25.0.5, 00:00:40, Serial3/0

192.25.0.0/30 is subnetted, 2 subnets

C 192.25.0.0 is directly connected, Serial2/0

C 192.25.0.4 is directly connected, Serial3/0

192.25.1.0/30 is subnetted, 3 subnets

O IA 192.25.1.0 [110/128] via 192.25.0.1, 00:02:59, Serial2/0

O IA 192.25.1.4 [110/192] via 192.25.0.1, 00:02:59, Serial2/0

[110/192] via 192.25.0.5, 00:00:56, Serial3/0

O IA 192.25.1.8 [110/128] via 192.25.0.5, 00:00:56, Serial3/0

192.25.2.0/30 is subnetted, 3 subnets

O IA 192.25.2.0 [110/192] via 192.25.0.1, 00:02:38, Serial2/0

[110/192] via 192.25.0.5, 00:00:56, Serial3/0

Router#

**Router 1**

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

Router(config-router)#exit

Router(config)#router ospf 1

Router(config-router)#network 192.25.1.0 0.0.0.3 area 0

Router(config-router)#network 192.25.1.0 0.0.0.3 area 1

Router(config-router)#

00:56:45: %OSPF-6-AREACHG: 192.25.1.0/0 changed from area 0 to area 1

Router(config-router)#network 192.25.1.0 0.0.0.3 area 0

00:56:53: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.1.6 on Serial2/0 frnetwork 192.25.0.0 0.0.0.3 area 0

Router(config-router)#network 192.25.0.0 0.0.0.3 area 0

00:57:19: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.0.6 on Serial6/0 frnetwork 192.25.2.4 0.0.0.3 area 2

Router(config-router)#network 192.25.2.4 0.0.0.3 area 2

00:57:35: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.2.6 on Serial3/0 frnetwork 25.0.0.0 0.255.255.255 area 3

Router(config-router)#exit

Router(config)#exit

Router#

%SYS-5-CONFIG\_I: Configured from console by console

Router#copy run start

Destination filename [startup-config]?

Building configuration...

[OK]

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

C 25.0.0.0/8 is directly connected, FastEthernet0/0

O IA 26.0.0.0/8 [110/129] via 192.25.0.2, 00:01:27, Serial6/0

192.25.0.0/30 is subnetted, 2 subnets

C 192.25.0.0 is directly connected, Serial6/0

O 192.25.0.4 [110/128] via 192.25.0.2, 00:03:42, Serial6/0

192.25.1.0/30 is subnetted, 3 subnets

C 192.25.1.0 is directly connected, Serial2/0

O 192.25.1.4 [110/128] via 192.25.1.2, 00:04:10, Serial2/0

O 192.25.1.8 [110/192] via 192.25.1.2, 00:04:10, Serial2/0

192.25.2.0/30 is subnetted, 3 subnets

O 192.25.2.0 [110/128] via 192.25.2.6, 00:03:30, Serial3/0

C 192.25.2.4 is directly connected, Serial3/0

--More—

**Router 2**

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

Router(config-router)#exit

Router(config)#router ospf 1

Router(config-router)#network 192.25.2.8 0.0.0.3

% Incomplete command.

Router(config-router)#network 192.25.2.8 0.0.0.3 area 2

Router(config-router)#network 192.25.2.8 0.0.0.3 area 2

00:58:36: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.2.10 on Serial2/0 frnetwork 192.25.1.8 0.0.0.3 area 1

Router(config-router)#network 192.25..4 0.0.0.3 area 0

00:58:56: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.1.10 on Serial3/0 fronetwork 192.25.0.4 0.0.0.3 area 0

Router(config-router)#

00:59:12: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.0.6 on Serial6/0 from LOADING to FULL, Loading Done

Router(config-router)#network 26.0.0.0 0.255.255.255 area 4

Router(config-router)#exit

Router(config)#exit

Router#

%SYS-5-CONFIG\_I: Configured from console by console

Router#copy run start

Destination filename [startup-config]?

Building configuration...

[OK]

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

O IA 25.0.0.0/8 [110/129] via 192.25.0.6, 00:02:08, Serial6/0

C 26.0.0.0/8 is directly connected, FastEthernet0/0

192.25.0.0/30 is subnetted, 2 subnets

O 192.25.0.0 [110/128] via 192.25.0.6, 00:02:08, Serial6/0

C 192.25.0.4 is directly connected, Serial6/0

192.25.1.0/30 is subnetted, 3 subnets

O 192.25.1.0 [110/192] via 192.25.1.10, 00:02:28, Serial3/0

O 192.25.1.4 [110/128] via 192.25.1.10, 00:02:28, Serial3/0

C 192.25.1.8 is directly connected, Serial3/0

192.25.2.0/30 is subnetted, 3 subnets

O 192.25.2.0 [110/128] via 192.25.2.10, 00:02:51, Serial2/0

O 192.25.2.4 [110/192] via 192.25.2.10, 00:02:51, Serial2/0

Router#

**Router 3**

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

Router(config-router)#exit

Router(config)#router ospf 1

Router(config-router)#network 192.25.1.4 0.0.0.3 area 1

Router(config-router)#network 192.25.1.0 0.0.0.3 area 1

Router(config-router)#

00:54:34: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.1.10 on Serial3/0 from LOADING to FULL, Loading Done

exit

Router(config)#exit

Router#

%SYS-5-CONFIG\_I: Configured from console by console

Router#copy run start

Destination filename [startup-config]?

Building configuration...

[OK]

Router#

00:56:20: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area must be virtual-link but not found from 192.25.1.2, Serial2/0

00:56:30: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area must be virtual-link but not found from 192.25.1.2, Serial2/0

00:56:40: %OSPF-4-ERRRCV: Received invalid packet: mismatch area ID, from backbone area must be virtual-link but not found from 192.25.1.2, Serial2/0

00:56:53: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.2.5 on Serial2/0 from LOADING to FULL, Loading Done

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

O IA 25.0.0.0/8 [110/65] via 192.25.1.1, 00:04:03, Serial2/0

O IA 26.0.0.0/8 [110/129] via 192.25.1.5, 00:02:22, Serial3/0

192.25.0.0/30 is subnetted, 2 subnets

O IA 192.25.0.0 [110/128] via 192.25.1.1, 00:04:40, Serial2/0

O IA 192.25.0.4 [110/192] via 192.25.1.1, 00:04:30, Serial2/0

[110/192] via 192.25.1.5, 00:02:32, Serial3/0

192.25.1.0/30 is subnetted, 3 subnets

C 192.25.1.0 is directly connected, Serial2/0

C 192.25.1.4 is directly connected, Serial3/0

O 192.25.1.8 [110/128] via 192.25.1.5, 00:07:24, Serial3/0

192.25.2.0/30 is subnetted, 3 subnets

O IA 192.25.2.0 [110/192] via 192.25.1.1, 00:04:18, Serial2/0

--More—

**Router 4**

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface Serial2/0

Router(config-if)#clock rate 64000

This command applies only to DCE interfaces

Router(config-if)#no ip address

Router(config-if)#ip address 192.25.2.6 255.255.255.0

Router(config-if)#ip address 192.25.2.6 255.255.255.252

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#exit

Router(config)#interface Serial3/0

Router(config-if)#clock rate 64000

Router(config-if)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

ip address 192.25.2.1 255.255.255.252

Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial3/0, changed state to down

Router(config-if)#

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

Router(config-if)#exit

Router(config)#router rip

Router(config-router)#exit

Router(config)#router ospf 1

Router(config-router)#network 192.25.2.0 0.0.0.3 area 2

Router(config-router)#network 192.25.2.4 0.0.0.3 area 2

Router(config-router)#exit

Router(config)#exit

Router#

%SYS-5-CONFIG\_I: Configured from console by console

Router#copy run start

Destination filename [startup-config]?

Building configuration...

[OK]

Router#

00:51:58: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.2.10 on Serial3/0 from LOADING to FULL, Loading Done

00:57:35: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.2.5 on Serial2/0 from LOADING to FULL, Loading Done

Router con0 is now available

Press RETURN to get started.

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#exit

Router#

%SYS-5-CONFIG\_I: Configured from console by console

Router#shgow ip route

^

% Invalid input detected at '^' marker.

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

O IA 25.0.0.0/8 [110/65] via 192.25.2.5, 00:04:37, Serial2/0

O IA 26.0.0.0/8 [110/129] via 192.25.2.2, 00:02:49, Serial3/0

192.25.0.0/30 is subnetted, 2 subnets

O IA 192.25.0.0 [110/128] via 192.25.2.5, 00:04:58, Serial2/0

O IA 192.25.0.4 [110/192] via 192.25.2.5, 00:04:58, Serial2/0

[110/192] via 192.25.2.2, 00:03:01, Serial3/0

192.25.1.0/30 is subnetted, 3 subnets

O IA 192.25.1.0 [110/128] via 192.25.2.5, 00:04:58, Serial2/0

O IA 192.25.1.4 [110/192] via 192.25.2.5, 00:04:58, Serial2/0

O IA 192.25.1.8 [110/192] via 192.25.2.2, 00:03:11, Serial3/0

192.25.2.0/30 is subnetted, 3 subnets

C 192.25.2.0 is directly connected, Serial3/0

--More—

**Router 5**

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

Router(config-router)#exit

Router(config)#router ospf 1

Router(config-router)#network 192.25.2.0 0.0.0.3 area 2

Router(config-router)#network 192.25.2.0 0.0.0.3 area 2

00:51:58: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.2.6 on Serial2/0 fr

Router(config-router)#network 192.25.2.8 0.0.0.3 area

% Incomplete command.

Router(config-router)#network 192.25.2.8 0.0.0.3 area 2

Router(config-router)#exit

Router(config)#exit

Router#

%SYS-5-CONFIG\_I: Configured from console by console

Router#copy run start

Destination filename [startup-config]?

Building configuration...

[OK]

Router#

00:58:36: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.2.9 on Serial3/0 from LOADING to FULL, Loading Done

Router con0 is now available

Press RETURN to get started.

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#exit

Router#

%SYS-5-CONFIG\_I: Configured from console by console

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

O IA 25.0.0.0/8 [110/129] via 192.25.2.1, 00:05:04, Serial2/0

O IA 26.0.0.0/8 [110/65] via 192.25.2.9, 00:03:18, Serial3/0

192.25.0.0/30 is subnetted, 2 subnets

O IA 192.25.0.0 [110/192] via 192.25.2.1, 00:05:20, Serial2/0

[110/192] via 192.25.2.9, 00:03:28, Serial3/0

O IA 192.25.0.4 [110/128] via 192.25.2.9, 00:03:28, Serial3/0

192.25.1.0/30 is subnetted, 3 subnets

O IA 192.25.1.0 [110/192] via 192.25.2.1, 00:05:20, Serial2/0

O IA 192.25.1.4 [110/192] via 192.25.2.9, 00:03:38, Serial3/0

O IA 192.25.1.8 [110/128] via 192.25.2.9, 00:03:38, Serial3/0

192.25.2.0/30 is subnetted, 3 subnets

C 192.25.2.0 is directly connected, Serial2/0

--More—

**Router 6**

Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

Router(config-router)#exit

Router(config)#router ospf 1

Router(config-router)#network 192.25.1.8 0.0.0.3 area 1

Router(config-router)#network 192.25.1.4 0.0.0.3 area 1

Router(config-router)#exit

Router(config)#exit

Router#

%SYS-5-CONFIG\_I: Configured from console by console

Router#copy run start

Destination filename [startup-config]?

Building configuration...

[OK]

Router#

00:54:34: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.1.6 on Serial3/0 from LOADING to FULL, Loading Done

00:58:56: %OSPF-5-ADJCHG: Process 1, Nbr 192.25.2.9 on Serial2/0 from LOADING to FULL, Loading Done

Router#

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

O IA 25.0.0.0/8 [110/129] via 192.25.1.6, 00:05:24, Serial3/0

O IA 26.0.0.0/8 [110/65] via 192.25.1.9, 00:03:38, Serial2/0

192.25.0.0/30 is subnetted, 2 subnets

O IA 192.25.0.0 [110/192] via 192.25.1.6, 00:06:01, Serial3/0

[110/192] via 192.25.1.9, 00:03:48, Serial2/0

O IA 192.25.0.4 [110/128] via 192.25.1.9, 00:03:48, Serial2/0

192.25.1.0/30 is subnetted, 3 subnets

O 192.25.1.0 [110/128] via 192.25.1.6, 00:08:46, Serial3/0

C 192.25.1.4 is directly connected, Serial3/0

C 192.25.1.8 is directly connected, Serial2/0

192.25.2.0/30 is subnetted, 3 subnets

O IA 192.25.2.0 [110/192] via 192.25.1.9, 00:03:58, Serial2/0

Router#