--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]:

% Please answer 'yes' or 'no'.

Would you like to enter the initial configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>en

Router#conf

Router#configure t

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

Router(config)#hos

Router(config)#hostname R1

R1(config)#int

R1(config)#interface gi

R1(config)#interface gigabitEthernet 0/0/1

R1(config-if)#ip add

R1(config-if)#ip address 192.168.10.1

% Incomplete command.

R1(config-if)#ip address 192.168.10.1 255.255.255.0

R1(config-if)#no sh

R1(config-if)#no shutdown

R1(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up

R1(config-if)#end

R1#

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

R1#conf

R1#configure t

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

R1(config)#inter

R1(config)#interface gi

R1(config)#interface gigabitEthernet 0/0/0

R1(config-if)#ip add

R1(config-if)#ip address 192.168.20.1 255.255.255.0

R1(config-if)#no sh

R1(config-if)#no shutdown

R1(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

R1(config-if)#exit

R1(config)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up

Router>en

Router#conf

Router#configure t

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

Router(config)#hos

Router(config)#hostname R2

R2(config)#int

R2(config)#interface gi

R2(config)#interface gigabitEthernet 0/0/0

R2(config-if)#ip add

R2(config-if)#ip address 192.168.20.2 255.255.255.0

R2(config-if)#no sh

R2(config-if)#no shutdown

R2(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up

R2(config-if)#exit

R2(config)#int

R2(config)#interface gi

R2(config)#interface gigabitEthernet 0/0/1

R2(config-if)#ip add

R2(config-if)#ip address 192.168.30.1 255.255.255.0.

^

% Invalid input detected at '^' marker.

R2(config-if)#ip address 192.168.30.1 255.255.255.0

R2(config-if)#no sh

R2(config-if)#no shutdown

R2(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up

R2(config-if)#exit

R2(config)#int

R2(config)#interface g

R2(config)#interface gigabitEthernet 0/0/2

R2(config-if)#ip add

R2(config-if)#ip address 192.168.60.2 255.255.255.0

R2(config-if)#no sh

R2(config-if)#no shutdown

R2(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/2, changed state to up

R2(config-if)#exit

R2(config)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/2, changed state to up

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]:

% Please answer 'yes' or 'no'.

Would you like to enter the initial configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>en

Router#conf

Router#configure t

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

Router(config)#hos

Router(config)#hostname R3

R3(config)#int

R3(config)#interface f

R3(config)#interface gi

R3(config)#interface gigabitEthernet 0/0/0

R3(config-if)#ip add

R3(config-if)#ip address 192.168.30.2 255.255.255.0

R3(config-if)#no sh

R3(config-if)#no shutdown

R3(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up

R3(config-if)#exit

R3(config)#int

R3(config)#interface gi

R3(config)#interface gigabitEthernet 0/0/1

R3(config-if)#int

R3(config-if)#ip add

R3(config-if)#ip address 192.168.40.1 255.255.255.0

R3(config-if)#no sh

R3(config-if)#no shutdown

R3(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up

R3(config-if)#exit

R3(config)#

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>en

Router#conf t

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

Router(config)#hos

Router(config)#hostname R4

R4(config)#int

R4(config)#interface gi

R4(config)#interface gigabitEthernet 0/0/0

R4(config-if)#ip add

R4(config-if)#ip address 192.168.40.2 255.255.255.0

R4(config-if)#nosh

R4(config-if)#no s

R4(config-if)#no sh

R4(config-if)#no shutdown

R4(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up

R4(config-if)#exit

R4(config)#int

R4(config)#interface gi

R4(config)#interface gigabitEthernet 0/0/1

R4(config-if)#ip add

R4(config-if)#ip address 192.168.50.1 255.255.255.0

R4(config-if)#no sh

R4(config-if)#no shutdown

R4(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up

R4(config-if)#exit

R4(config)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up

R4(config)#in

R4(config)#interface gi

R4(config)#interface gigabitEthernet 0/0/2

R4(config-if)#ip add

R4(config-if)#ip address 192.168.70.1 255.255.255.0

R4(config-if)#no sh

R4(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/2, changed state to up

R4(config-if)#exit

R4(config)#

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]:

% Please answer 'yes' or 'no'.

Would you like to enter the initial configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>en

Router#con t

% Ambiguous command: "con t"

Router#conf t

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

Router(config)#int

Router(config)#hos

Router(config)#hostname R5

R5(config)#int

R5(config)#interface gi

R5(config)#interface gigabitEthernet 0/0/0

R5(config-if)#ip add

R5(config-if)#ip address 192.168.50.2 255.255.255.0

R5(config-if)#no sh

R5(config-if)#no shutdown

R5(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up

R5(config-if)#exit

R5(config)#interface gigabitEthernet 0/0/1

R5(config-if)#ip add

R5(config-if)#ip address 192.168.60.1 255.255.255.0

R5(config-if)#no ah

R5(config-if)#no sh

R5(config-if)#no shutdown

R5(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up

R5(config-if)#exit

R5(config)#

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: no

Press RETURN to get started!

Router>en

Router#conf

Router#configure t

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

Router(config)#host

Router(config)#hostname R6

R6(config)#int

R6(config)#interface gi

R6(config)#interface gigabitEthernet 0/0/0

R6(config-if)#ip add

R6(config-if)#ip address 192.168.70.2 255.255.255.0

R6(config-if)#no sh

R6(config-if)#no shutdown

R6(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

R6(config-if)#exit

R6(config)#interface gigabitEthernet 0/0/1

R6(config-if)#ip address 192.168.80.1 255.255.255.0

R6(config-if)#no sh

R6(config-if)#no shutdown

R6(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up

R6(config-if)#exit

R6(config)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up

**Static Default Routing**

**For R1**

R1(config)#ip route

R1(config)#ip route 0.0.0.0 0.0.0.0 192.168.20.2

R1(config)#

**For R6**

R6(config)#ip route 0.0.0.0 0.0.0.0 192.168.70.1

R6(config)#

Static Routing (For Single Direction Networks)

R4#configure t

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

R4(config)#ip route 192.168.80.0 255.255.255.0 192.168.70.2

R4(config)#

R2#configure t

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

R2(config)#ip route

R2(config)#ip route 192.168.10.0 255.255.255.0 192.168.20.1

R2(config)#

Static Load Balancing (For Multi-direction Networks)

R2(config)#ip route 192.168.70.0 255.255.255.0 192.168.30.2

R2(config)#ip route 192.168.70.0 255.255.255.0 192.168.60.1

R2(config)#ip route 192.168.80.0 255.255.255.0 192.168.60.1

R2(config)#ip route 192.168.80.0 255.255.255.0 192.168.30.2

R2(config)#

R4(config)#ip route

R4(config)#ip route 192.168.10.0 255.255.255.0 192.168.40.1

R4(config)#ip route 192.168.10.0 255.255.255.0 192.168.50.2

R4(config)#ip route 192.168.20.0 255.255.255.0 192.168.50.2

R4(config)#ip route 192.168.20.0 255.255.255.0 192.168.40.1

R4(config)#

Static Floating Routing (For alternate path Networks)

R2#

R2#conf

R2#configure t

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

R2(config)#ip route

R2(config)#ip route 192.168.40.0 255.255.255.0 192.168.30.2

R2(config)#ip route 192.168.40.0 255.255.255.0 192.168.30.2 5

R2(config)#ip route 192.168.50.0 255.255.255.0 192.168.30.2 5

R2(config)#ip route 192.168.50.0 255.255.255.0 192.168.60.1

R2(config)#

R4(config)#ip route 192.168.30.0 255.255.255.0 192.168.40.1

R4(config)#ip route 192.168.30.0 255.255.255.0 192.168.50.2 5

R4(config)#ip route 192.168.60.0 255.255.255.0 192.168.50.2

R4(config)#ip route 192.168.60.0 255.255.255.0 192.168.40.1 5

R4(config)#

**Now we will do show Ip route to know which network is missing and then we will add those networks in R3.**

**As we see, R3 only knows 192.168.30.0 and 192.168.40.0**

192.168.30.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.30.0/24 is directly connected, GigabitEthernet0/0/0

L 192.168.30.2/32 is directly connected, GigabitEthernet0/0/0

192.168.40.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.40.0/24 is directly connected, GigabitEthernet0/0/1

L 192.168.40.1/32 is directly connected, GigabitEthernet0/0/1

**Let’s add other networks too.**

R3#configure t

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

R3(config)#ip route 192.168.10.0 255.255.255.0 192.168.30.1

R3(config)#ip route 192.168.10.0 255.255.255.0 192.168.40.2 5

R3(config)#ip route 192.168.20.0 255.255.255.0 192.168.30.1

R3(config)#ip route 192.168.20.0 255.255.255.0 192.168.40.2 5

R3(config)#ip route 192.168.50.0 255.255.255.0 192.168.40.2

R3(config)#ip route 192.168.50.0 255.255.255.0 192.168.30.1 5

R3(config)#ip route 192.168.60.0 255.255.255.0 192.168.30.1

R3(config)#ip route 192.168.60.0 255.255.255.0 192.168.40.2 5

R3(config)#ip route 192.168.70.0 255.255.255.0 192.168.40.2

R3(config)#ip route 192.168.70.0 255.255.255.0 192.168.30.1 5

R3(config)#ip route 192.168.80.0 255.255.255.0 192.168.40.2

R3(config)#ip route 192.168.80.0 255.255.255.0 192.168.30.1 5

R3(config)#

R3#

**Now we will do show Ip route to know which network is missing and then we will add those networks in R3.**

**As we see, R5 only knows 192.168.50.0 and 192.168.60.0**

Gateway of last resort is not set

192.168.50.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.50.0/24 is directly connected, GigabitEthernet0/0/0

L 192.168.50.2/32 is directly connected, GigabitEthernet0/0/0

192.168.60.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.60.0/24 is directly connected, GigabitEthernet0/0/1

L 192.168.60.1/32 is directly connected, GigabitEthernet0/0/1

**Let’s add other networks too.**

R5#configure t

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

R5(config)#ip ro

R5(config)#ip route

R5(config)#ip route 192.168.10.0 255.255.255.0 192.168.60.2

R5(config)#ip route 192.168.10.0 255.255.255.0 192.168.50.1 5

R5(config)#ip route 192.168.20.0 255.255.255.0 192.168.60.2

R5(config)#ip route 192.168.20.0 255.255.255.0 192.168.50.1 5

R5(config)#ip route 192.168.30.0 255.255.255.0 192.168.60.2

R5(config)#ip route 192.168.30.0 255.255.255.0 192.168.50.1 5

R5(config)#ip route 192.168.40.0 255.255.255.0 192.168.50.1

R5(config)#ip route 192.168.40.0 255.255.255.0 192.168.60.2 5

R5(config)#ip route 192.168.70.0 255.255.255.0 192.168.50.1

R5(config)#ip route 192.168.70.0 255.255.255.0 192.168.60.2 5

R5(config)#ip route 192.168.80.0 255.255.255.0 192.168.50.1

R5(config)#ip route 192.168.80.0 255.255.255.0 192.168.60.2 5

R5(config)#