COMPUTER NETWORKING

➔ TO RUN ON CISCO PACKET TRACER

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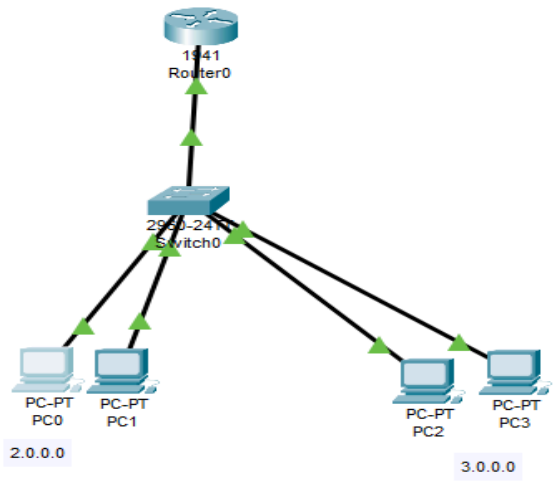
ROUTER CONFIGURATION



To select **router 1941** and connect to copper straight wire on switch.
To select **switch 2960** to connect four PC to connect wire copper straight wire.

Router port(Gig0/0)-------wire--------switch port(Gig0/1)
Switch port(fastethernet 0/1)-----wire------pc 1(fastethernet 0)
Switch port(fastethernet 0/2)------wire-----pc 2(fastethernet 0)
Switch port(fastethernet 0/11)------wire-----pc 3(fastethernet 0)
Switch port(fastethernet 0/12)------wire-----pc 4(fastethernet 0)

Pc 1— ip configuration [(ip—2.0.0.2),(subnet—255.0.0.0),(default gatway—-2.0.0.1)]

Pc 11— ip configuration [(ip—3.0.0.2),(subnet—255.0.0.0),(default gateway—-3.0.0.1)]

Switch device configuration(above fig.)

- ➔ Open ios command line interface(CLI)
- ➔ switch>en
- ➔ switch#conf t
- ➔ switch(config)# hostname s1
- ➔ S1 (config)# vlan 2

➔ s1(config-vlan)# name sales
➔ s1(config-vlan)# vlan 3
➔ s1(config-vlan)# name admin
➔ s1(config-vlan)# exit

➔ s1(config)#int range fa0/1-10
➔ s1(config-if-range)#switchport mode access
➔ s1(config-if-range)#switchport access vlan 2
➔ s1(config-if-range)#int range fa0/11-20
➔ s1(config-if-range)#switchport mode access
➔ s1(config-if-range)#switchport access vlan 3
➔ s1(config-if-range)#do sh vlan
➔ s1(config-if-range)#exit
➔ s1(config)#int gi0/1
➔ s1(config-if)#switchport mode trunk

Router device configuration(above fig.)

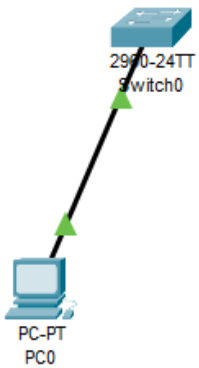
➔ Router>en
➔ Router#conf t
➔ Router(config)#hostname r1
➔ r1(config)#int gi0/0
➔ r1(config-if)#no shut
➔ r1(config-if)#int gi0/0.1
➔ r1(config-subif)#encapsulation dot1q 2
➔ r1(config-subif)#ip add 2.0.0.1 255.0.0.0
➔ r1(config-subif)#int gi0/0.2
➔ r1(config-subif)#encapsulation dot1q 3
➔ r1(config-subif)#ip add 3.0.0.1 255.0.0.0
➔ r1(config-subif)#exit
➔ r1(config)#
➔ r1(config)#exit
➔ r1#sh ip route

Select one PC to open command prompt

➔ ping 2.0.0.2

➔ ping 3.0.0.2

TELNET CONFIGURATION



To select one **switch 2960** to connect the PC in straight copper wire.

Switch port(fastethernet 0/1)-----wire------pc 1(fastethernet 0)

Pc 1— ip configuration [(ip—1.0.0.2),(subnet—255.0.0.0)

Switch device configuration(above fig.)

➔ Switch>en
➔ Switch#conf t
➔ Switch(config)#int vlan 1
➔ Switch(config-if)#ip add 1.0.0.1 255.0.0.0
➔ Switch(config-if)#no shut
➔ Switch(config-if)#exit
➔ Switch(config)#exit

Also to write command telnet password configuration on switch.

➔ Switch#en
➔ Switch#conf t

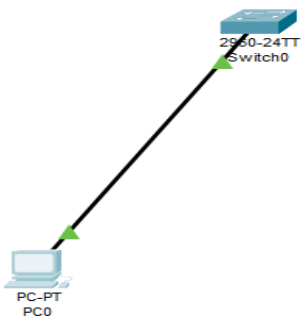
➔ Switch(config)#hostname s1
➔ s1(config)#enable password 123
➔ s1(config)#line vty 0
➔ s1(config-line)#password 456
➔ s1(config-line)#login
➔ s1(config-line)#exit
➔ s1(config)#exit
➔ s1#

Select PC to open command prompt

➔ C:\>telnet 1.0.0.1
➔ User Access Verification
➔ Password:456
➔ s1>en
➔ Password:123
➔ s1#sh mac address-table

SSH (Remote Accessing)

SSH is significantly more secure as it encrypts data transmission.



To select one **switch 2960** to connect the PC in straight copper wire.

Switch port(fastethernet 0/1)-----wire------pc 1(fastethernet 0)

Pc 1— ip configuration [(ip—1.0.0.2)]

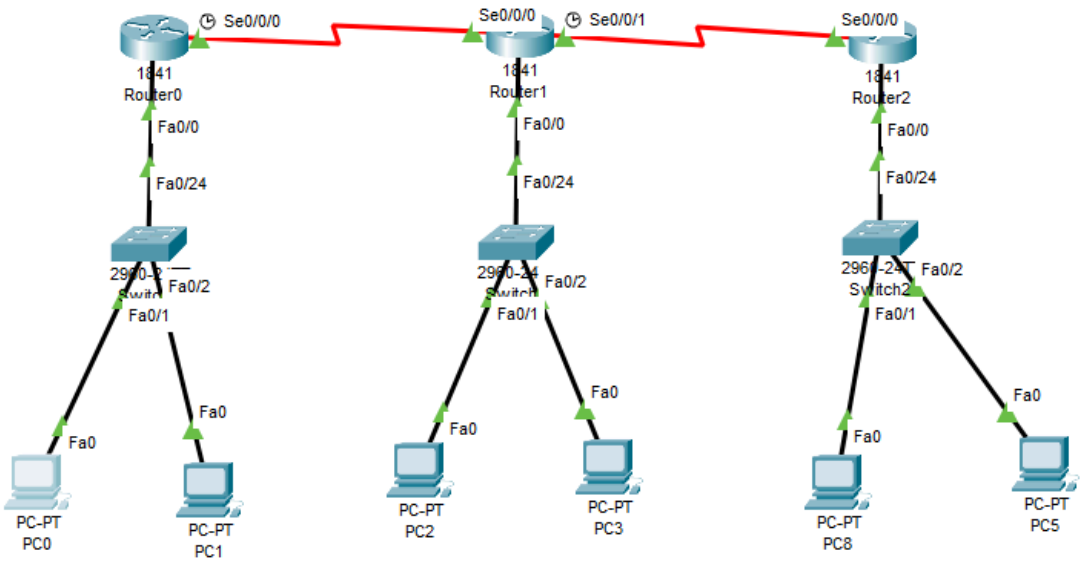
Switch device configuration(above fig.)

➔ Switch>en
➔ Switch#conf t
➔ Switch(config)#hostname s1
➔ s1(config)#username piku password 789
➔ s1(config)#line vty 0
➔ s1(config-line)#no password
➔ s1(config-line)#no login
➔ s1(config-line)#exit
➔ s1(config)#line vty 0
➔ s1(config-line)#exit
➔ s1(config)#int vlan 1
➔ s1(config-if)#ip add 1.0.0.1 255.0.0.0
➔ s1(config-if)#no shut
➔ s1(config-if)#exit
➔ s1(config)#ip domain name cimage
➔ s1(config)#crypto key generate rsa
➔ How many bits in the modulus [512]: 1024
➔ s1(config)#line vty 0
➔ s1(config-line)#login local
➔ s1(config-line)#transport input ssh
➔ s1(config-line)#login local
➔ s1(config-line)#exit
➔ s1(config)#exit

Select PC to open command prompt

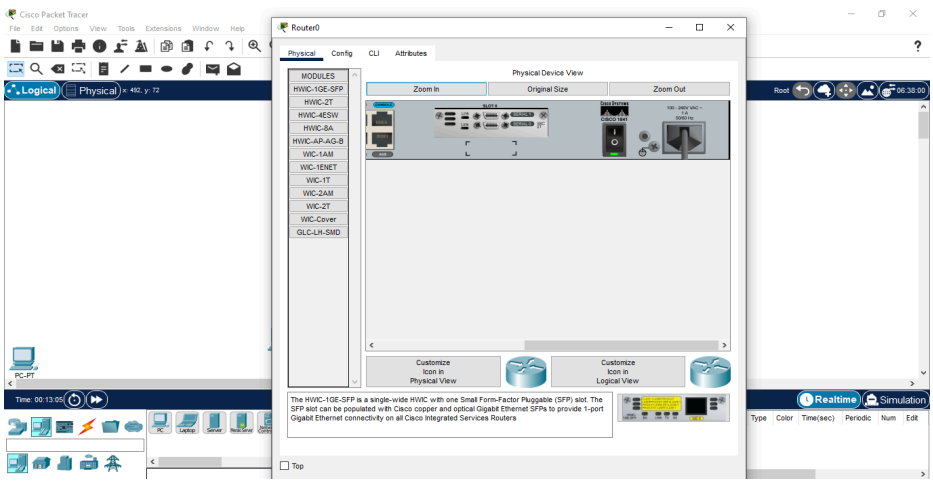
➔ Cisco Packet Tracer PC Command Line 1.0
➔ C:\>ssh -l piku 1.0.0.1
➔ Password:
➔ s1>ping 1.0.0.1

STATIC AND DYNAMIC ROUTER



To select 3 **switch 2960** to connect two pairs of PCs to connect wire copper straight wire.[Total=6 PC]

Switch port(fastethernet 0/1)-----wire------pc 0(fastethernet 0)
Switch port(fastethernet 0/2)------wire-----pc 1(fastethernet 0)
Switch port(fastethernet 0/1)-----wire------pc 2(fastethernet 0)
Switch port(fastethernet 0/2)------wire-----pc 3(fastethernet 0)
Switch port(fastethernet 0/1)-----wire------pc 4(fastethernet 0)
Switch port(fastethernet 0/2)------wire-----pc 5(fastethernet 0)



- ➢ **To go to a physical device view.**
- ➢ **To click on the router off.**
- ➢ **To add place on the original size WIC-2T.**
- ➢ **After setting it on the router.**

To select 3 **router 1841** and connect to copper straight wire on switch and to interconnect router to router using **Serial DCE** wire.

Router port 0 (Fa0/0)-------straight wire--------switch port(Fa0/24)
Router port 1 (Fa0/0)-------straight wire--------switch port(Fa0/24)
Router port 2 (Fa0/0)-------straight wire--------switch port(Fa0/24)

To set ip in last on the PC after the router.
Pc 0— ip configuration [(ip—1.0.0.2),(subnet—255.0.0.0),(default gateway—-1.0.0.1)]

Pc 2— ip configuration [(ip—2.0.0.2),(subnet—255.0.0.0),(default gateway—-2.0.0.1)]

Pc 4— ip configuration [(ip—3.0.0.2),(subnet—255.0.0.0),(default gateway—-3.0.0.1)]

Router 0 device configuration(above fig.)

- ➔ Router>en
- ➔ Router#conf t
- ➔ Router(config)#hostname r1
- ➔ r1(config)#int fa0/0
- ➔ r1(config-if)#ip add 1.0.0.1 255.0.0.0
- ➔ r1(config-if)#no shut
- ➔ r1(config-if)#int s0/0/0
- ➔ r1(config-if)#ip add 11.0.0.1 255.0.0.0
- ➔ r1(config-if)#clock rate 64000
- ➔ r1(config-if)#no shut
- ➔ r1(config-if)#exit
- ➔ r1(config)#

➔ r1(config)#exit
➔ r1#
➔ r1#wr

//

➔ r1>en
➔ r1#sh ip route

//

➔ r1#
➔ r1#conf t
➔ r1(config)#ip route 2.0.0.0 255.0.0.0 11.0.0.2
➔ r1(config)#ip route 3.0.0.0 255.0.0.0 11.0.0.2
➔ r1(config)#ip route 12.0.0.0 255.0.0.0 11.0.0.2
➔ r1(config)#exit

//

➔ r1#
➔ r1#sh ip route

//

➔ r1>en
➔ r1#conf t
➔ r1(config)#no ip route 12.0.0.0 255.0.0.0 11.0.0.2
➔ r1(config)#no ip route 3.0.0.0 255.0.0.0 11.0.0.2
➔ r1(config)#no ip route 2.0.0.0 255.0.0.0 11.0.0.2
➔ r1(config)#do sh ip route
➔ r1(config)#ip route 0.0.0.0 0.0.0.0 11.0.0.2
➔ r1(config)#do sh ip route

Router 1 device configuration(above fig.)

➔ Router>en
➔ Router#conf t
➔ Router(config)#hostname r2
➔ r2(config)#int fa0/0
➔ r2(config-if)#ip add 2.0.0.1 255.0.0.0
➔ r2(config-if)#no shut
➔ r2(config-if)#int s0/0/0

➔ r2(config-if)#ip add 11.0.0.2 255.0.0.0
➔ r2(config-if)#no shut
➔ r2(config-if)#int s0/0/1
➔ r2(config-if)#ip add 12.0.0.1 255.0.0.0
➔ r2(config-if)#clock rate 64000
➔ r2(config-if)#no shut
➔ r2(config-if)#exit
➔ r2(config)#
➔ r2(config)#exit
➔ r2#
➔ r2#wr
➔ r2#sh ip route

//

➔ r2>en
➔ r2#conf t
➔ r2(config)#ip route 1.0.0.0 255.0.0.0 11.0.0.1
➔ r2(config)#ip route 3.0.0.0 255.0.0.0 12.0.0.2
➔ r2(config)#exit
➔ r2#
➔ r2#sh ip route

Router 2 device configuration(above fig.)

➔ Router>en
➔ Router#conf t
➔ Router(config)#hostname r3
➔ r3(config)#int fa0/0
➔ r3(config-if)#ip add 3.0.0.1 255.0.0.0
➔ r3(config-if)#no shut
➔ r3(config-if)#int s0/0/0
➔ r3(config-if)#ip add 12.0.0.2 255.0.0.0
➔ r3(config-if)#no shut
➔ r3(config-if)#exit
➔ r3(config)#exit
➔ r3#
➔ r3#wr
➔ r3#sh ip route

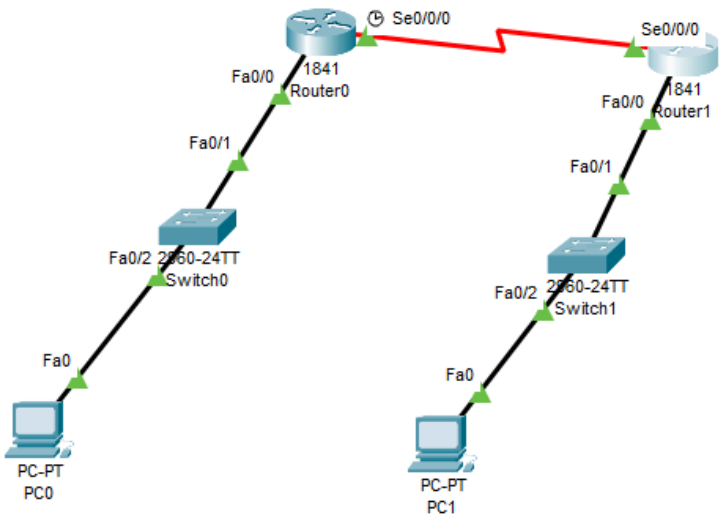
//

- ➔ r3>en
- ➔ r3#conf t
- ➔ r3(config)#ip route 2.0.0.0 255.0.0.0 12.0.0.1
- ➔ r3(config)#ip route 1.0.0.0 255.0.0.0 12.0.0.1
- ➔ r3(config)#ip route 11.0.0.0 255.0.0.0 12.0.0.1
- ➔ r3(config)#do sh ip route

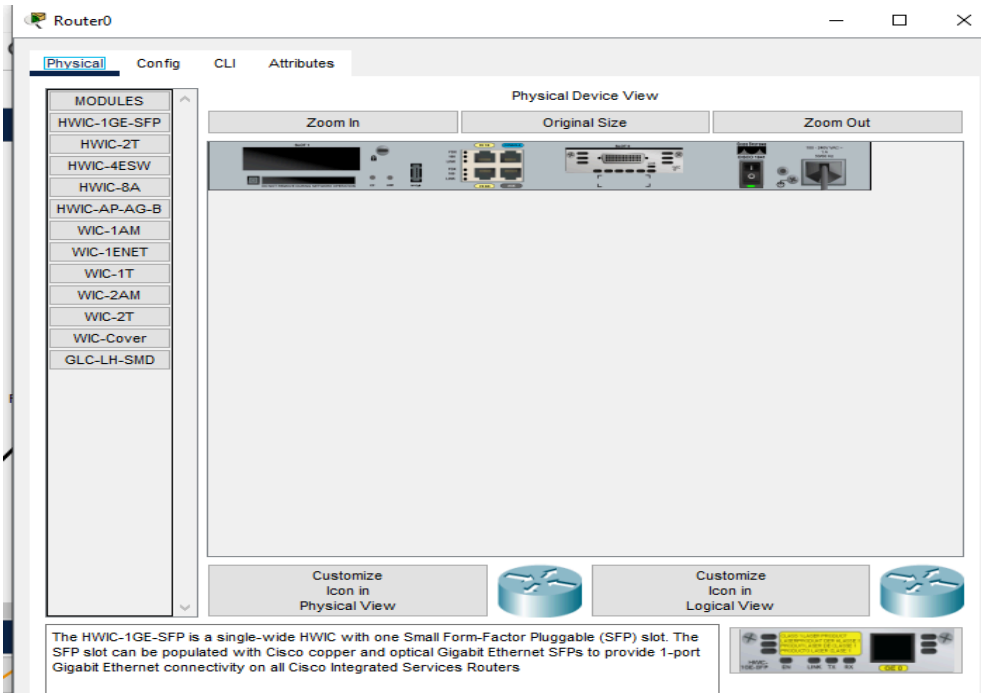
Select PC to open command prompt

- ➔ C:\>ping 2.0.0.2
- ➔ C:\>ping 3.0.0.2
- ➔ C:\>ping 3.0.0.2

BGP CONFIGURATION



- ➢ **To go to a physical device view.**
- ➢ **To click on the router off.**
- ➢ **To add place on the original size WIC-1T.**
- ➢ **After setting it on the router.**
- ➢ **Router 0 and router 1 to set wic-1T.**



Router 0 device configuration(above fig.)

- ➔ Router>en
- ➔ Router#conf t
- ➔ Router(config)#hostname r1
- ➔ r1(config)#int fa0/0
- ➔ r1(config-if)#ip add 1.0.0.1 255.0.0.0
- ➔ r1(config-if)#no shut
- ➔ r1(config-if)#int se0/0/0
- ➔ r1(config-if)#ip add 11.0.0.1 255.0.0.0
- ➔ r1(config-if)#clock rate 64000
- ➔ r1(config-if)#no shut
- ➔ r1(config-if)#exit
- ➔ r1(config)#exit
- ➔ r1#
- ➔ r1#wr
- ➔ Building configuration...
- ➔ [OK]

##

➔ r1#conf t
➔ r1(config)#router bgp
➔ r1(config)#router bgp 100
➔ r1(config-router)#net 11.0.0.0
➔ r1(config-router)#net 1.0.0.0
➔ r1(config-router)#neighbor 11.0.0.2 remote-as 200
➔ r1(config-router)#exit
➔ r1(config)#exit
➔ r1#
➔ **r1#sh ip route**

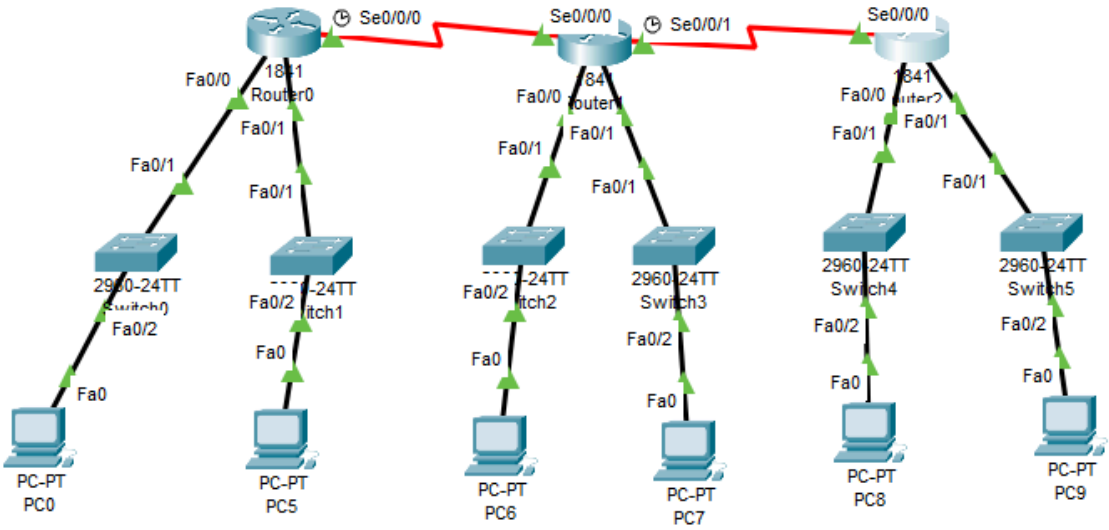
Router 1 device configuration(above fig.)

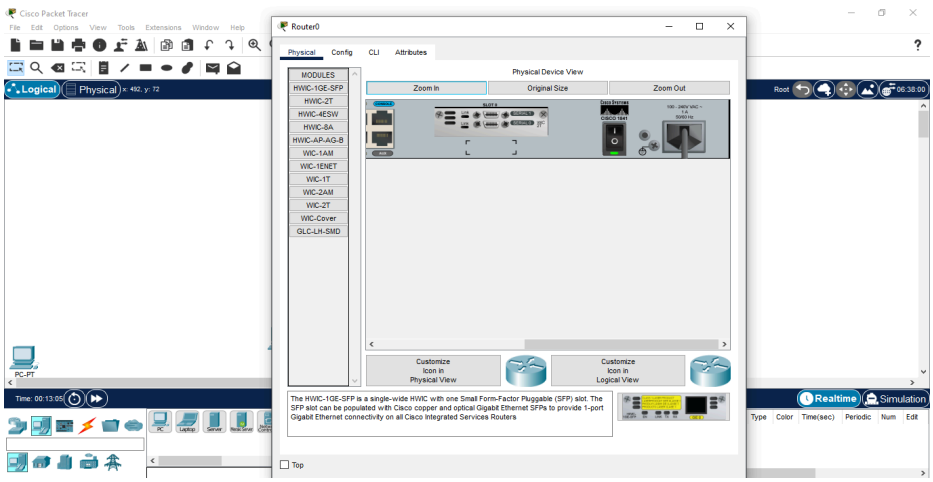
➔ Router>en
➔ Router#conf t
➔ Router(config)#hostname r2
➔ r2(config)#int fa0/0
➔ r2(config-if)#ip add 2.0.0.1 255.0.0.0
➔ r2(config-if)#no shut
➔ r2(config-if)#int se0/0/0
➔ r2(config-if)#ip add 11.0.0.2 255.0.0.0
➔ r2(config-if)#no shut
➔ r2(config-if)#exit
➔ r2(config)#exit
➔ r2#
➔ r2#wr
➔ Building configuration...
➔ [OK]

##

➔ r2#conf t
➔ r2(config)#router bgp 200
➔ r2(config-router)#net 2.0.0.0
➔ r2(config-router)#net 11.0.0.0
➔ r2(config-router)#neighbor 11.0.0.1 remote-as 100
➔ r2(config-router)#exit
➔ r2(config)#exit
➔ r2#
➔ **r2#sh ip route**

RIP CONFIGURATION





- ➢ To go to a physical device view.
- ➢ To click on the router off.
- ➢ To add place on the original size WIC-2T.
- ➢ After setting it on the router.
- ➢ Router 0 router 1and router 2 to set wic-2T.

Router 0 device configuration(above fig.)

➔ Router>en
➔ Router#conf t
➔ Router(config)#hostname r1
➔ r1(config)#int fa0/1
➔ r1(config-if)#ip add 1.0.0.1 255.255.225.192
➔ r1(config-if)#no shut
➔ r1(config-if)#int fa0/0
➔ r1(config-if)#ip add 1.0.0.1 255.255.225.192
➔ r1(config-if)#no shut
➔ r1(config-if)#int fa0/0
➔ r1(config-if)#ip add 1.0.0.65 255.255.255.192
➔ r1(config-if)#no shut
➔ r1(config-if)#
➔ r1(config-if)#int se0/0/0
➔ r1(config-if)#ip add 11.0.0.1 255.0.0.0
➔ r1(config-if)#clock rate 64000
➔ r1(config-if)#no shut
➔ r1(config-if)#exit
➔ r1(config)#exit
➔ r1#
➔ r1#wr
➔ Building configuration...
➔ [OK]
➔ r1#
➔ r1#conf t
➔ r1(config)#router rip
➔ r1(config-router)#version 2
➔ r1(config-router)#net 1.0.0.64
➔ r1(config-router)#net 11.0.0.0
➔ r1(config-router)#

Router 1 device configuration(above fig.)

➔ Router>en
➔ Router#conf t
➔ Router(config)#hostname r2
➔ r2(config)#int fa0/0

➔ r2(config-if)#ip add 2.0.0.1 255.255.255.224
➔ r2(config-if)#no shut
➔ r2(config-if)#int fa0/1
➔ r2(config-if)#ip add 2.0.0.33 255.255.255.224
➔ r2(config-if)#no shut
➔ r2(config-if)#int se0/0/0
➔ r2(config-if)#ip add 11.0.0.2 255.0.0.0
➔ r2(config-if)#no shut
➔ r2(config-if)#int se0/0/1
➔ r2(config-if)#i
➔ r2(config-if)#ip add 12.0.0.1 255.0.0.0
➔ r2(config-if)#clock rate 64000
➔ r2(config-if)#no shut
➔ r2(config-if)#exit
➔ r2(config)#exit
➔ r2#
➔ r2#wr
➔ Building configuration...
➔ [OK]
➔ r2#
➔ r2>en
➔ r2#conf t
➔ Enter configuration commands, one per line. End with CNTL/Z.
➔ r2(config)#router rip
➔ r2(config-router)#version 2
➔ r2(config-router)#net 2.0.0.0
➔ r2(config-router)#net 2.0.0.32
➔ r2(config-router)#net 11.0.0.0
➔ r2(config-router)#net 12.0.0.0
➔ r2(config-router)#exit
➔ r2(config)#exit
➔ r2#

Router 2 device configuration(above fig.)

➔ Router>en
➔ Router#conf t

➔ Router(config)#hostname r3
➔ r3(config)#int fa0/0
➔ r3(config-if)#ip add 3.0.0.1 255.255.255.240
➔ r3(config-if)#no shut
➔ r3(config-if)#int fa0/1
➔ r3(config-if)#ip add 3.0.0.17 255.255.255.240
➔ r3(config-if)#no shut
➔ r3(config-if)#int se0/0/0
➔ r3(config-if)#ip add 12.0.0.2 255.0.0.0
➔ r3(config-if)#no shut
➔ r3(config-if)#exit
➔ r3(config)#exit
➔ r3#
➔ r3#wr
➔ Building configuration...
➔ [OK]
➔ r3#
➔ r3#conf t
➔ r3(config)#router rip
➔ r3(config-router)#version 2
➔ r3(config-router)#net 3.0.0.0
➔ r3(config-router)#net 3.0.0.16
➔ r3(config-router)#net 12.0.0.0
➔ r3(config-router)#exit
➔ r3(config)#exit
➔ r3#
➔ **r3#sh ip route**
——----------