American International University-Bangladesh (AIUB)

Faculty of Science and Technology (FST)
Department of Computer Science (CS)
Undergraduate Program

Course Code and Title: CSC 3116: Computer Networks

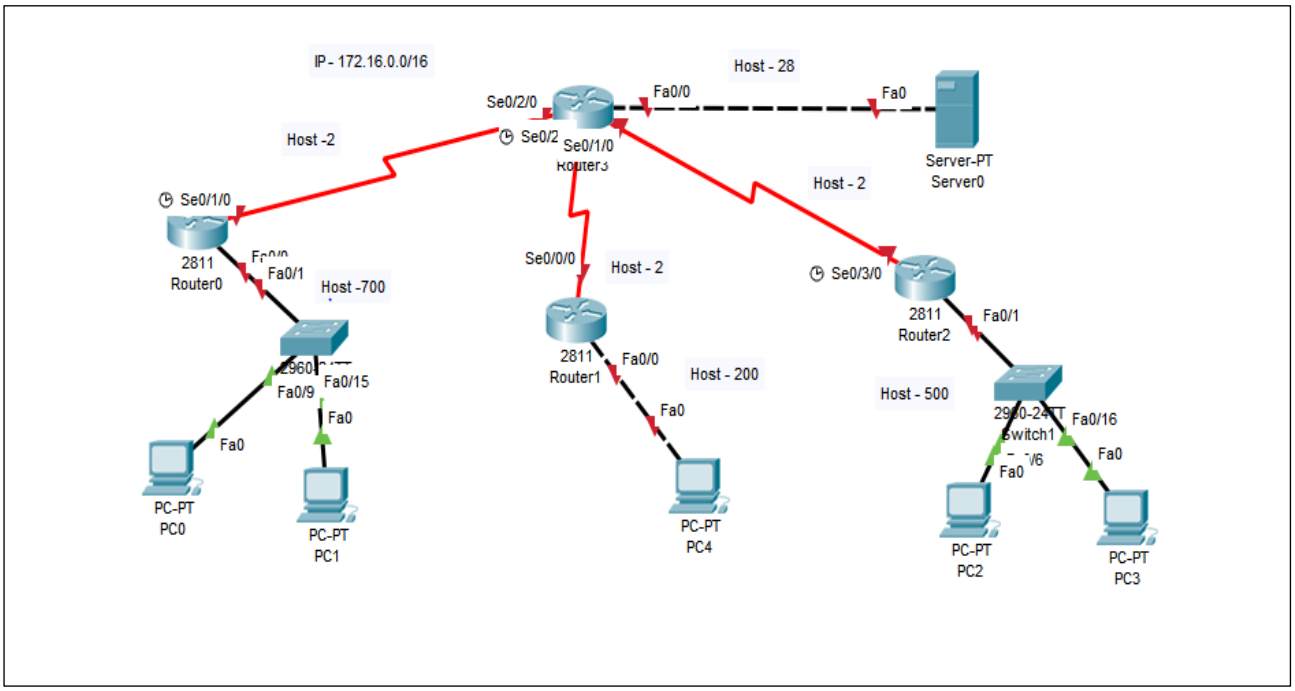
Credit: 3

Lab Manual

Title: Configuration of RIP routing protocol version 2 with VLSM

Software: cisco packet tracer

Network Design:



Question:

IP address: 172.16.0.0/16; Default gateway –last valid IP of the range; Routing algorithm (Rip v2)

Router 0: Host 700; **Router 1:** Host 200; **Router 2:** Host 500; **Router 3:** Host 28

Serial: router 0 to router 3 -1st subnet; router 1 to router 3 -2nd subnet; router 2 to router 3 -3rd subnet

Solution

Performing subnetting for the given IP block:

	How many bits to borrow	No. of allocated IPs	No. of host bits No. of net bits	Subnet mask	Allocated IP range
Router 0: Host 700	10 bits	1024	Host: 10 bits Net: 22 bits	255.255.252.0	172.16.0.0/22 172.16.3.255/22
Router 2: Host 500	9 bits	512	Host: 9 bits Net: 23 bits	255.255.254.0	172.16.4.0/23 172.16.5.255/23
Router 1: Host 200	8 bits	256	Host: 8 bits Net: 24 bits	255.255.255.0	172.16.6.0/24 172.16.6.255/24
Router 3: Host 28	5 bits	32	Host: 5 bits Net: 27 bits	255.255.255.224	172.16.7.0/27 172.16.7.31/27
R0 to R3: Host 2+2	2 bits	4	Host: 2 bits Net: 30 bits	255.255.255.252	172.16.7.32/30 172.16.7.35/30
R1 to R3: Host 2+2	2 bits	4	Host: 2 bits Net: 30 bits	255.255.255.252	172.16.7.36/30 172.16.7.39/30
R2 to R3: Host 2+2	2 bits	4	Host: 2 bits Net: 30 bits	255.255.255.252	172.16.7.40/30 172.16.7.43/30

Configuration:

Router 0

Router>en

Router#conf t

Router(config)#int f0/0

Router(config-if)#ip address 172.16.3.254 255.255.252.0

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#int s0/1/0

Router(config-if)#ip address 172.16.7.33 255.255.255.252

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#router rip

Router(config-router)# version 2

Router(config-router)#network 172.16.0.0

Router(config-router)#network 172.16.7.32

Router(config-router)# no auto-summary

Router(config-router)#exit

Router 1

Router>en

Router#conf t

Router(config)#int f0/0

Router(config-if)#ip address 172.16.6.254 255.255.255.0

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#int s0/0/0

Router(config-if)#ip address 172.16.7.37 255.255.255.252

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#router rip

Router(config-router)# version 2

Router(config-router)#network 172.16.6.0

Router(config-router)#network 172.16.7.36

Router(config-router)# no auto-summary

Router 2

Router>en

Router#conf t

Router(config)#int f0/0

Router(config-if)#ip address 172.16.5.254 255.255.254.0

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#int s0/3/0

Router(config-if)#ip address 172.16.7.41 255.255.255.252

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#router rip

Router(config-router)# version 2

Router(config-router)#network 172.16.4.0

Router(config-router)#network 172.16.7.40

Router(config-router)# no auto-summary

Router(config-router)#exit

Router 3

Router>en

Router#conf t

Router(config)#int f0/0

Router(config-if)#ip address 172.16.7.30 255.255.255.224

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#int s0/2/0

Router(config-if)#ip address 172.16.7.34 255.255.255.252

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#int s0/2/1

Router(config-if)#ip address 172.16.7.38 255.255.255.252

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#int s0/1/0

Router(config-if)#ip address 172.16.7.42 255.255.255.252

Router(config-if)#no shut

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Router(config-if)#exit


Router(config)#router rip
Router(config-router)# version 2
Router(config-router)#network 172.16.7.0
Router(config-router)#network 172.16.7.32
Router(config-router)#network 172.16.7.36
Router(config-router)#network 172.16.7.40
Router(config-router)# no auto-summary
```