|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Network** | **Host Requirement** | **Minimum Subnet Mask** | **Usable Address** | **Subnet Mask** | **Subnet Address** | **IP Range** | **Broadcast Address** |
| Net-1 | 439 | /23 | 510 | 255.255.254.0 | 15.112.0.0 | 15.112.0.1 - 15.112.1.254 | 15.112.1.255 |
| Net-2 | 78 | /25 | 126 | 255.255.255.128 | 15.112.2.0 | 15.112.2.1 - 15.112.2.126 | 15.112.2.127 |
| Net-3 | 120 | /25 | 126 | 255.255.255.128 | 15.112.2.128 | 15.112.2.129 - 15.112.2.254 | 15.112.2.255 |
| Net-4 | 45 | /26 | 62 | 255.255.255.192 | 15.112.3.0 | 15.112.3.1 - 15.112.3.62 | 15.112.3.63 |
| Net-5 | 200 | /24 | 254 | 255.255.255.0 | 15.112.4.0 | 15.112.4.1 - 15.112.4.254 | 15.112.4.255 |
| Net-6 | 100 | /25 | 126 | 255.255.255.128 | 15.112.5.0 | 15.112.5.1 - 15.112.5.126 | 15.112.5.127 |
| Net-7 | 21 | /27 | 30 | 255.255.255.224 | 15.112.5.128 | 15.112.5.129 - 15.112.5.158 | 15.112.5.159 |
| Net-8 | 190 | /24 | 254 | 255.255.255.0 | 15.112.6.0 | 15.112.6.1 - 15.112.6.254 | 15.112.6.255 |

Enter enable secret: 12

Enter enable password: 34

For R1

interface GigabitEthernet0/0/0

ip address 15.112.0.1 255.255.254.0

no shutdown

interface GigabitEthernet0/0/1

ip address 15.112.2.1 255.255.255.128

no shutdown

for R2

interface GigabitEthernet0/0/0

ip address 15.112.5.129 255.255.255.224

no shutdown

interface GigabitEthernet0/0/1

ip address 15.112.6.1 255.255.255.0

no shutdown

for R3

interface GigabitEthernet0/0/0

ip address 15.112.2.129 255.255.255.128

no shutdown

interface GigabitEthernet0/0/1

ip address 15.112.3.1 255.255.255.192

no shutdown

for R4

interface GigabitEthernet0/0/0

ip address 15.112.4.1 255.255.255.0

no shutdown

interface GigabitEthernet0/0/1

ip address 15.112.5.1 255.255.255.128

no shutdown

R1(config)# ip dhcp pool NET1

R1(dhcp-config)# network 15.112.0.0 255.255.254.0

R1(dhcp-config)# default-router 15.112.0.1

R1(dhcp-config)# dns-server 8.8.8.8

R1(dhcp-config)# exit

Write memory

R1(config)# ip dhcp pool NET2

R1(dhcp-config)# network 15.112.2.0 255.255.255.128

R1(dhcp-config)# default-router 15.112.2.1

R1(dhcp-config)# dns-server 8.8.8.8

R1(dhcp-config)# exit

R2(config)# ip dhcp pool NET7

R2(dhcp-config)# network 15.112.5.128 255.255.255.224

R2(dhcp-config)# default-router 15.112.5.129

R2(dhcp-config)# dns-server 8.8.8.8

R2(dhcp-config)# exit

R2(config)# ip dhcp pool NET8

R2(dhcp-config)# network 15.112.6.0 255.255.255.0

R2(dhcp-config)# default-router 15.112.6.1

R2(dhcp-config)# dns-server 8.8.8.8

R2(dhcp-config)# exit

R3(config)# ip dhcp pool NET3

R3(dhcp-config)# network 15.112.2.128 255.255.255.128

R3(dhcp-config)# default-router 15.112.2.129

R3(dhcp-config)# dns-server 8.8.8.8

R3(dhcp-config)# exit

R3(config)# ip dhcp pool NET4

R3(dhcp-config)# network 15.112.3.0 255.255.255.192

R3(dhcp-config)# default-router 15.112.3.1

R3(dhcp-config)# dns-server 8.8.8.8

R3(dhcp-config)# exit

R4(config)# ip dhcp pool NET5

R4(dhcp-config)# network 15.112.4.0 255.255.255.0

R4(dhcp-config)# default-router 15.112.4.1

R4(dhcp-config)# dns-server 8.8.8.8

R4(dhcp-config)# exit

R4(config)# ip dhcp pool NET6

R4(dhcp-config)# network 15.112.5.0 255.255.255.128

R4(dhcp-config)# default-router 15.112.5.1

R4(dhcp-config)# dns-server 8.8.8.8

R4(dhcp-config)# exit

R1(config)# ip route 15.112.4.0 255.255.255.0 15.112.9.2 # Route to Net-5 via R3

R1(config)# ip route 15.112.5.0 255.255.255.128 15.112.9.2 # Route to Net-6 via R3

R1(config)# ip route 15.112.6.0 255.255.255.0 15.112.10.2 # Route to Net-8 via R2

R1(config)# ip route 15.112.5.128 255.255.255.224 15.112.10.2 # Route to Net-7 via R2

R2(config)# ip route 15.112.0.0 255.255.254.0 15.112.10.1 # Route to Net-1 via R1

R2(config)# ip route 15.112.2.0 255.255.255.128 15.112.10.1 # Route to Net-2 via R1

R2(config)# ip route 15.112.2.128 255.255.255.128 15.112.12.2 # Route to Net-3 via R5 and R3

R2(config)# ip route 15.112.3.0 255.255.255.192 15.112.12.2 # Route to Net-4 via R5 and R3

R2(config)# ip route 15.112.4.0 255.255.255.0 15.112.15.2 # Route to Net-5 via R4

R3(config)# ip route 15.112.0.0 255.255.254.0 15.112.9.1 # Route to Net-1 via R1

R3(config)# ip route 15.112.2.0 255.255.255.128 15.112.9.1 # Route to Net-2 via R1

R3(config)# ip route 15.112.5.128 255.255.255.224 15.112.14.2 # Route to Net-7 via R5 and R4

R3(config)# ip route 15.112.6.0 255.255.255.0 15.112.14.2 # Route to Net-8 via R5 and R4

R4(config)# ip route 15.112.0.0 255.255.254.0 15.112.15.1 # Route to Net-1 via R5 and R1

R4(config)# ip route 15.112.2.0 255.255.255.128 15.112.15.1 # Route to Net-2 via R5 and R1

R4(config)# ip route 15.112.2.128 255.255.255.128 15.112.12.1 # Route to Net-3 via R5 and R3

R4(config)# ip route 15.112.3.0 255.255.255.192 15.112.12.1 # Route to Net-4 via R5 and R3

C:\>ping 15.112.2.1

Pinging 15.112.2.1 with 32 bytes of data:

Reply from 15.112.2.1: bytes=32 time<1ms TTL=255

Reply from 15.112.2.1: bytes=32 time<1ms TTL=255

Reply from 15.112.2.1: bytes=32 time<1ms TTL=255

Reply from 15.112.2.1: bytes=32 time<1ms TTL=255

Ping statistics for 15.112.2.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms