|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Subnet | No. of IPs required | How many bits to borrow | No. of allocated IPs | No. of host bits No. of net bits | Subnet mask | Wildcard masks | Allocated IP range |
| R1 | 630 | 2^9>630>2^10 | 1024 | x=10,  y=32-10 =22 | 255.255.252.0 | 0.0.3.255 | 192.168.2.0-192.168.5.255/22 |
| R2 | 78 | 2^6>78>2^7 | 128 | x=7,  y=32-7 =25 | 255.255.255.128 | 0.0.0.127 | 192.168.6.0-192.168.6.127/25 |
| R3 | 530 | 2^9>530>2^10 | 1024 | x=10,  y=32-10 =22 | 255.255.252.0 | 0.0.3.255 | 192.168.6.128-192.168.10.127/22 |
| R4 | 30 | 2^4>32>2^5 | 32 | x=5,  y=32-5 =27 | 255.255.255.224 | 0.0.0.31 | 192.168.10.128-192.168.10.159/27 |
| N1 | 4 | 2^2 | 4 | x =2,  y = 32-2 =30 | 255.255.255.252 | 0.0.0.3 | 192.168.10.160-192.168.10.163/30 |
| N2 | 4 | 2^2 | 4 | x =2,  y = 32-2 =30 | 255.255.255.252 | 0.0.0.3 | 192.168.10.164-192.168.10.167/30 |
| N3 | 4 | 2^2 | 4 | x =2,  y = 32-2 =30 | 255.255.255.252 | 0.0.0.3 | 192.168.10.168-192.168.10.171/30 |
| N4 | 4 | 2^2 | 4 | x =2,  y = 32-2 =30 | 255.255.255.252 | 0.0.0.3 | 192.168.10.172-192.168.10.175/30 |

Router 1:

en  
conf t

int fa0/0  
ip address 192.168.2.1 255.255.252.0  
no shut

int Se0/2/0  
ip address 192.168.10.161 255.255.255.252  
no shut

int Se0/3/0  
ip address 192.168.10.165 255.255.255.252  
no shut

Router 2:  
en  
conf t

 int fa0/0  
ip address 192.168.6.1 255.255.255.128  
no shut

int Se0/3/0  
ip address 192.168.10.166 255.255.255.252  
no shut

int Se0/3/1  
ip address 192.168.10.173 255.255.255.252  
no shut

Router 3:  
en  
conf t

int Se0/2/0  
ip address 192.168.10.162 255.255.255.252  
no shut

int Se0/3/0  
ip address 192.168.10.169 255.255.255.252  
no shut

int fa0/0   
ip address 192.168.6.129 255.255.252.0  
no shut

Router 4

en  
conf t

int Se0/3/0  
ip address 192.168.10.170 255.255.255.252  
no shut

int Se0/3/1  
ip address 192.168.10.174 255.255.255.252  
no shut

int fa0/0   
ip address 192.168.10.129 255.255.255.224  
no shut

OSPF CONGIGURATION  
Router 1:

router ospf 10  
router-id 1.1.1.1  
network 192.168.2.0 0.0.3.255 area 0  
network 192.168.10.160 0.0.0.3 area 0  
network 192.168.10.164 0.0.0.3 area 0  
exit

Router 2:

router ospf 10  
router-id 2.2.2.2

network 192.168.6.0 0.0.0.127 area 0  
network 192.168.10.172 0.0.0.3 area 0  
network 192.168.10.164 0.0.0.3 area 0  
exit

Router 3:

router ospf 10  
router-id 1.1.1.11  
network 192.168.6.128 0.0.3.255 area 0  
network 192.168.10.160 0.0.0.3 area 0  
network 192.168.10.168 0.0.0.3 area 0  
exit

Router 4:

router ospf 10  
router-id 1.1.1.10  
network 192.168.10.128 0.0.0.31 area 0  
network 192.168.10.172 0.0.0.3 area 0  
network 192.168.10.168 0.0.0.3 area 0  
exit

**EIGRP**

**R1:**

router eigrp 1

network 192.168.2.0 0.0.3.255

network 192.168.10.164 0.0.0.3

network 192.168.10.160 0.0.0.3exi

no auto-summary

**R2:**

router eigrp 1

network 192.168.6.0 0.0.0.127

network 192.168.10.164 0.0.0.3

network 192.168.10.172 0.0.0.3

no auto-summary

**R4:**

router eigrp 1

network 192.168.6.128 0.0.3.255

network 192.168.10.168 0.0.0.3

network 192.168.10.160 0.0.0.3

no auto-summary

**R4:**

router eigrp 1

network 192.168.10.128 0.0.0.31

network 192.168.10.172 0.0.0.3

network 192.168.10.168 0.0.0.3

no auto-summary