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# Figure: Network Topology

# Commands:

These are the list of commands we have used to configure the topology according to the requirements:

### Primary Network Configuration:

|  |  |  |  |
| --- | --- | --- | --- |
| **R1** | **R2** | **R3** | **ISP** |
| int f0/0  ip address 172.16.0.1 255.255.248.0  no shutdown  int f1/0  ip address 172.16.8.1 255.255.255.0  no shutdown  int s2/0  ip address 172.16.9.161 255.255.255.252  clock rate 64000  no shutdown | int f0/0  ip address 172.16.9.129 255.255.255.224  no shutdown  int f1/0  ip address 172.16.9.65 255.255.255.192  no shutdown  int s2/0  ip address 172.16.9.162 255.255.255.252  clock rate 64000  no shutdown  int s3/0  ip address 172.16.9.169 255.255.255.252  clock rate 64000  no shutdown | int f0/0  Ip address 172.16.9.1 255.255.255.192  no shutdown  int s2/0  ip address 172.16.9.170 255.255.255.252  clock rate 64000  no shutdown  int s3/0  ip address 172.16.9.177 255.255.255.252  clock rate 64000  no shutdown | int f0/0  ip address 192.168.9.161 255.255.255.252  no shutdown  int f1/0  ip address 192.168.9.169 255.255.255.252  no shutdown  int f6/0  ip address 192.168.9.177 255.255.255.252  no shutdown |

### RipV2 Setup:

|  |  |  |  |
| --- | --- | --- | --- |
| **R1** | **R2** | **R3** | **ISP** |
| router rip  version 2  no auto summary  network 172.16.0.0  network 172.16.8.0  network 172.16.9.160 | router rip  version 2  no auto summary  network 172.16.9.64  network 172.16.9.128  network 172.16.9.160  network 172.16.9.168 | router rip  version 2  no auto summary  network 172.16.9.0  network 172.16.9.168  network 172.16.9.176 | router rip  version 2  no auto summary  network 172.16.9.176  network 192.168.9.160  network 192.168.9.168  network 192.168.9.176 |

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### DHCP Configuration:

**In router R1:**

**Student and Faculties are getting ip through DHCP**

ip dhcp excluded-address 172.16.0.1

ip dhcp excluded-address 172.16.8.1

ip dhcp pool student

network 172.16.0.0 255.255.248.0

default-router 172.16.0.1

ip dhcp pool faculty

network 172.16.8.0 255.255.255.0

default -router 172.16.8.1

### ACL Restrictions:

**Blocking students from accessing accounts department [R2]:**

ip access-list standard student

deny 172.16.0.0 0.0.7.255

permit any

end

int Fa0/0

ip access-group student out

**Blocking students from accessing IT department [R3]:**

ip access-list standard student

deny 172.16.0.0 0.0.7.255

permit any

end

int Fa0/0

ip access-group student out

**Blocking Students and Faculty from Facebook [ISP]:**

ip access-list standard facebook

deny 172.16.0.0 0.0.7.255

deny 172.16.8.0 0.0.0.255

permit any

end

int Fa0/0

ip access-group facebook out

**Blocking Students from Youtube [ISP]:**

ip access-list standard youtube

deny 172.16.0.0 0.0.7.255

permit any

end

int fa0/0

ip access-group youtube out

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### NAT Configuration:

**On isp router**

ip access-list standard sesh

permit 172.16.9.64 0.0.0.63

permit 172.16.9.128 0.0.0.31

permit 172.16.9.0 0.0.0.63

ip nat pool shuru 105.12.32.15 105.12.32.22 netmask 255.255.255.128

ip nat inside source list sesh pool shuru

int Se2/0

ip nat out

int Fa0/0

ip nat out

int Fa1/0

ip nat out

int Fa6/0

ip nat out

**On R3 router:**

ip nat inside source static 172.16.9.4 105.12.32.23

ip nat inside source static 172.16.9.5 105.12.32.24

int Fa0/0

ip nat in

int Se3/0

ip nat out