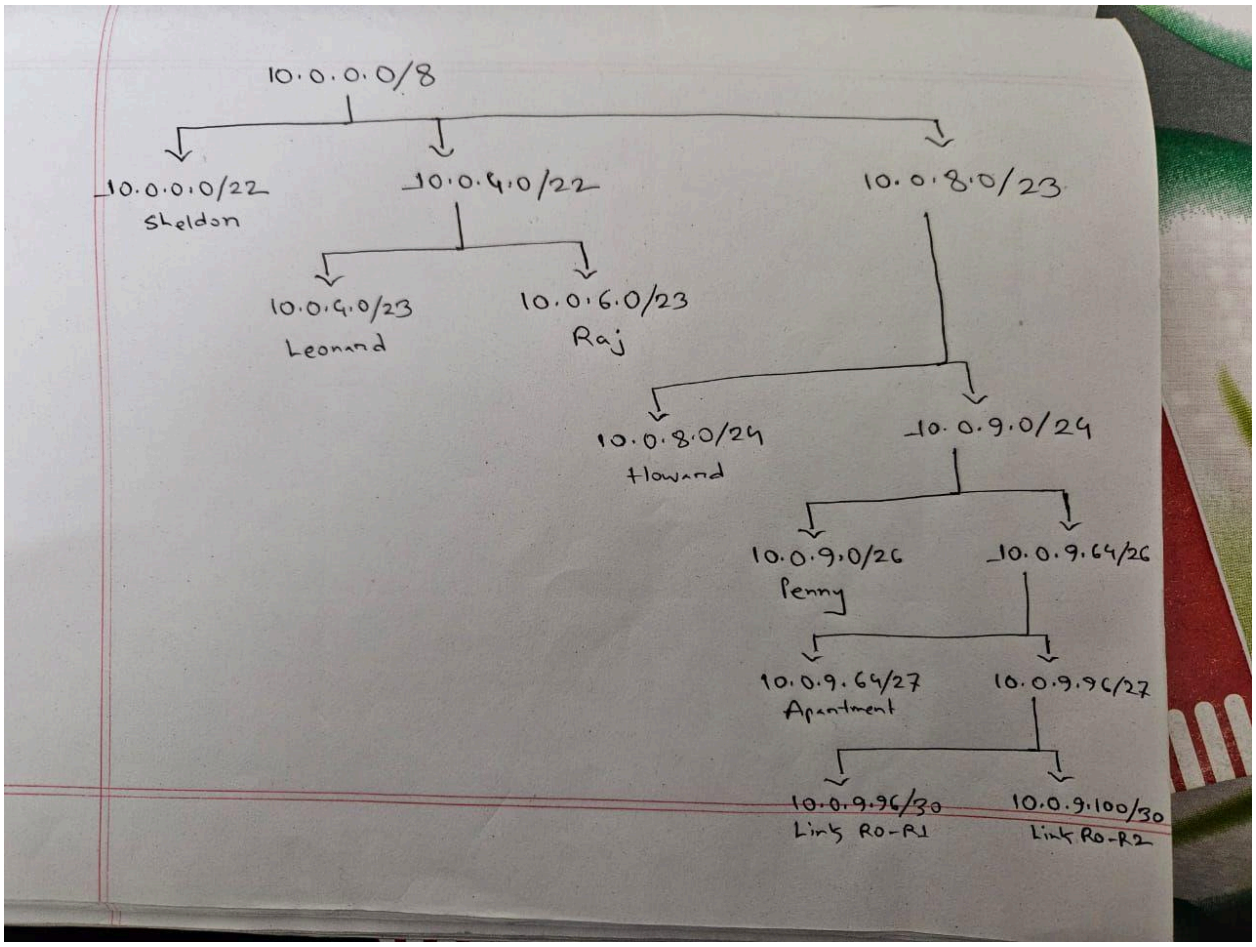
BASE IP: 10.0.0.0/8

VLSM TREE:



ADDRESS TABLE

Zone / Link	Device / Role	IP Address	Subnet Mask	Notes
Sheldon – Theoretical Physics Lab	Network	10.0.0.0	255.255.252.0	/22, up to 1022 hosts
	R2 G0/0 (gateway)	10.0.0.1	255.255.252.0	Default gateway for Sheldon PCs
	Sheldon-DHCP (Server0)	10.0.0.2	255.255.252.0	DHCP server, pool 10.0.0.10+
	Sheldon-Email (Server1)	10.0.0.3	255.255.252.0	Email server (sheldon.com)
	Example PC (PC0)	10.0.0.10 (DHCP)	255.255.252.0	Client in Sheldon LAN
Leonard – Experimental Physics Lab	Network	10.0.4.0	255.255.254.0	/23, up to 510 hosts
	R1 G0/0 (gateway)	10.0.4.1	255.255.254.0	Default gateway for Leonard PCs
	Leonard-DHCP (Server2)	10.0.4.2	255.255.254.0	DHCP server, pool 10.0.4.10+
	Example PC (PC2)	10.0.4.10 (DHCP)	255.255.254.0	Client in Leonard LAN
Raj – Particle Astrophysics Center	Network	10.0.6.0	255.255.254.0	/23, up to 510 hosts
	R0 G0/1 (gateway)	10.0.6.1	255.255.254.0	Default gateway for Raj PCs

	Raj-DHCP (Server5)	10.0.6.2	255.255.254.0	DHCP server, pool 10.0.6.10+
	Raj-Email (Server6)	10.0.6.3	255.255.254.0	Email server (raj.com)
	Example PC (PC8)	10.0.6.10 (DHCP)	255.255.254.0	Client in Raj LAN
Howard – JPL Engineering Bay	Network	10.0.8.0	255.255.255.0	/24, up to 254 hosts
	R1 G0/1 (gateway)	10.0.8.1	255.255.255.0	Default gateway for Howard PCs
	Howard-DHCP (Server4)	10.0.8.2	255.255.255.0	DHCP server, pool 10.0.8.10+
	Example PC (PC6)	10.0.8.10 (DHCP)	255.255.255.0	Client in Howard LAN
Penny – Cheesecake Factory Back Office	Network	10.0.9.0	255.255.255.192	/26, up to 62 hosts
	R2 G0/1 (gateway)	10.0.9.1	255.255.255.192	Default gateway for Penny PCs
	Penny-DHCP (Server3)	10.0.9.2	255.255.255.192	DHCP server, pool 10.0.9.10+
	Example PC (PC4)	10.0.9.10 (DHCP)	255.255.255.192	Client in Penny LAN
Apartment – Committee Network	Network	10.0.9.64	255.255.255.224	/27, up to 30 hosts
	R0 G0/0 (gateway)	10.0.9.65	255.255.255.224	Default gateway for apartment PCs

	Apartment-Web (Server7)	10.0.9.66	255.255.255.224	Web server (pasadena.com)
	Apartment-DNS (Server8)	10.0.9.67	255.255.255.224	DNS server for all zones
	CaltechSupport (Server9)	10.0.9.68	255.255.255.224	“Bazinga! We’ve got your back!” page
	Apartment-PC1 (PC10)	10.0.9.70 (static)	255.255.255.224	Committee member PC
	Apartment-PC2 (PC11)	10.0.9.71 (static)	255.255.255.224	Committee member PC
R0–R1 WAN Link	Network	10.0.9.96	255.255.255.252	/30 point-to-point
	R0 S0/0/0	10.0.9.97	255.255.255.252	Toward R1
	R1 S0/0/0	10.0.9.98	255.255.255.252	Toward R0
R0–R2 WAN Link	Network	10.0.9.100	255.255.255.252	/30 point-to-point
	R0 S0/0/1	10.0.9.101	255.255.255.252	Toward R2
	R2 S0/0/0	10.0.9.102	255.255.255.252	Toward R0

CLI COMMANDS

R0:::

```
enable
configure terminal
hostname R0

! Apartment LAN
interface GigabitEthernet0/0
 ip address 10.0.9.65 255.255.255.224
 description Connection to Apartment
 no shutdown
exit

! Raj LAN
interface GigabitEthernet0/1
 ip address 10.0.6.1 255.255.254.0
 description Connection to Raj
 no shutdown
exit

! Serial link to R1 (Leonard–Howard router)
interface Serial0/0/0
 ip address 10.0.9.97 255.255.255.252
 description WAN to R1
 clock rate 64000
 no shutdown
exit

! Serial link to R2 (Sheldon–Penny router)
interface Serial0/0/1
 ip address 10.0.9.101 255.255.255.252
```

```
 description WAN to R2
 clock rate 64000
 no shutdown
exit

configure terminal

! To Sheldon network via R2
ip route 10.0.0.0 255.255.252.0 10.0.9.102

! To Leonard network via R1
ip route 10.0.4.0 255.255.254.0 10.0.9.98

! To Howard network via R1
ip route 10.0.8.0 255.255.255.0 10.0.9.98

! To Penny network via R2
ip route 10.0.9.0 255.255.255.192 10.0.9.102

! Floating static route to Raj via Leonard (backup, AD 25)
ip route 10.0.6.0 255.255.254.0 10.0.9.98 25

exit

write memory

show ip interface brief
show ip route
show running-config
show ip ospf neighbor
```

R2:::

```
enable
configure terminal
hostname R2

! Sheldon LAN
interface GigabitEthernet0/0
 ip address 10.0.0.1 255.255.252.0
 description Connection to Sheldon
 no shutdown
exit

! Penny LAN
interface GigabitEthernet0/1
 ip address 10.0.9.1 255.255.255.192
 description Connection to Penny
 no shutdown
exit

! Serial link to R0
interface Serial0/0/0
 ip address 10.0.9.102 255.255.255.252
 description WAN to R0
 no shutdown
exit

configure terminal

! Back to Apartment
ip route 10.0.9.64 255.255.255.224 10.0.9.101

! To Raj via R0
ip route 10.0.6.0 255.255.254.0 10.0.9.101
```

```
! To Leonard via R0
ip route 10.0.4.0 255.255.254.0 10.0.9.101

! To Howard via R0
ip route 10.0.8.0 255.255.255.0 10.0.9.101

exit

write memory

show ip interface brief
show ip route
show running-config
```

R1:::

```
enable
configure terminal
hostname R1

! Leonard LAN
interface GigabitEthernet0/0
 ip address 10.0.4.1 255.255.254.0
 description Connection to Leonard
 no shutdown
exit

! Howard LAN
interface GigabitEthernet0/1
 ip address 10.0.8.1 255.255.255.0
 description Connection to Howard
```

```
 no shutdown
exit

! Serial link to R0
interface Serial0/0/0
 ip address 10.0.9.98 255.255.255.252
 description WAN to R0
 no shutdown
exit

configure terminal

! Back to Apartment network via R0
ip route 10.0.9.64 255.255.255.224 10.0.9.97

! To Raj via R0
ip route 10.0.6.0 255.255.254.0 10.0.9.97

! To Sheldon via R0
ip route 10.0.0.0 255.255.252.0 10.0.9.97

! To Penny via R0
ip route 10.0.9.0 255.255.255.192 10.0.9.97

exit

write memory

show ip interface brief
show ip route
show running-config
```

Dhcp

```
! On R2 for Sheldon LAN
interface GigabitEthernet0/0
 ip helper-address 10.0.0.2
exit

! On R2 for Penny LAN
interface GigabitEthernet0/1
 ip helper-address 10.0.9.2
exit
```

```
! On R1 for Leonard LAN
interface GigabitEthernet0/0
 ip helper-address 10.0.4.2
exit

! On R1 for Howard LAN
interface GigabitEthernet0/1
 ip helper-address 10.0.8.2
exit

! On R0 for Raj LAN
interface GigabitEthernet0/1
 ip helper-address 10.0.6.2
exit
```