**5th Lab - Dynamic IP Allocation and Routing with RIP in a Multi-Network Topology**

**Topology**

**A computer network diagram with a red line

AI-generated content may be incorrect.**

**Network Topology Documentation (RIP Enabled)**

1. **Network Summary**

|  |  |  |
| --- | --- | --- |
| **Switch Location** | **Subnet** | **Connected PCs** |
| Switch0 | 192.168.100.0/24 | PC0, PC1 |
| Switch1 | 172.16.0.0/16 | PC2, PC3 |
| Serial Network | 1.0.0.0/8 (Router Link) | Router 0 (R1) ↔ Router 1 (R2) |

1. **Router Configuration (CLI)**

**Router 0 (R1)**

Router> enable

Router# configure terminal

Router(config)# hostname R1

**# Fastethernet 0/0 - Connects to Switch0**

R1(config)# interface fastethernet 0/0

R1(config-if)# ip address 192.168.100.1 255.255.255.0

R1(config-if)# no shutdown

R1(config-if)# exit

**# Serial 0/0/0 - Connects to R2**

R1(config)# interface serial 0/0/0

R1(config-if)# ip address 1.0.0.1 255.0.0.0

R1(config-if)# clock rate 148000

R1(config-if)# no shutdown

R1(config-if)# exit

**# DHCP for 192.168.100.0/24**

R1(config)# ip dhcp pool LAN1

R1(dhcp-config)# network 192.168.100.0 255.255.255.0

R1(dhcp-config)# default-router 192.168.100.1

R1(dhcp-config)# exit

**# Enable RIP Routing**

R1(config)# router rip

R1(config-router)# network 192.168.100.0

R1(config-router)# network 1.0.0.0

R1(config-router)# no auto-summary

**# Save configuration**

R1(config)# Ctrl + Z

R1# write

**Router 1 (R2)**

Router> enable

Router# configure terminal

Router(config)# hostname R2

**# fastethernet 0/0 - Connects to Switch1**

R2(config)# interface fastethernet 0/0

R2(config-if)# ip address 172.16.0.1 255.255.0.0

R2(config-if)# no shutdown

R2(config-if)# exit

**# Serial 0/0/1 - Connects to R1**

R2(config)# interface serial 0/0/1

R2(config-if)# ip address 1.0.0.2 255.0.0.0

R2(config-if)# no shutdown

R2(config-if)# exit

**# DHCP for 172.16.0.0/16**

R2(config)# ip dhcp pool LAN2

R2(dhcp-config)# network 172.16.0.0 255.255.0.0

R2(dhcp-config)# default-router 172.16.0.1

R2(dhcp-config)# exit

**# Enable RIP Routing**

R2(config)# router rip

R2(config-router)# network 172.16.0.0

R2(config-router)# network 1.0.0.0

R2(config-router)# no auto-summary

**# Save configuration**

R2(config)# Ctrl + Z

R2# write

1. **PC Configuration Steps (Same for PC0–PC3)**
2. Click on each PC (e.g., PC0).
3. Go to **Desktop** tab > **IP Configuration**.
4. Select **DHCP**.
5. The PC will receive:

* IP Address
* Subnet Mask
* Default Gateway (from router)