Cisco Packet Tracer RIPng (IPv6) Network Configuration

Project Overview: This project demonstrates how to configure RIPng (Routing Information Protocol Next Generation) for IPv6 routing between three Cisco routers in Cisco Packet Tracer. The topology includes two LANs connected through a RIPng-enabled IPv6 backbone.

Network Topology:

PC0 & PC1 → Switch0 → Router0 ↔ Router1 ↔ Router2 → Switch1 → PC2 & PC3

IPv6 Addressing Scheme:

Device/Link	Interface	IPv6 Address	Prefix
Router0	G0/0	2001:db8:0:1::1	/64
Router0	S0/0/0	2001:db8:0:a::1	/64
Router1	S0/0/0	2001:db8:0:a::2	/64
Router1	S0/0/1	2001:db8:0:b::1	/64
Router2	S0/0/1	2001:db8:0:b::2	/64
Router2	G0/0	2001:db8:0:2::1	/64
PC0	-	2001:db8:0:1::10	/64
PC1	-	2001:db8:0:1::11	/64
PC2	-	2001:db8:0:2::10	/64
PC3	-	2001:db8:0:2::11	/64

Configuration Steps:

1. Enable IPv6 routing on all routers using 'ipv6 unicast-routing'.
2. Assign IPv6 addresses to interfaces as shown above.
3. Enable RIPng on each participating interface using 'ipv6 rip RIP-LAB enable'.
4. Verify with 'show ipv6 route rip' and 'show ipv6 rip'.
5. Test end-to-end connectivity using 'ping ipv6 '.

Verification Commands:

- show ipv6 interface brief - show ipv6 route - show ipv6 route rip - show ipv6 rip - ping ipv6

Troubleshooting Tips:

1. Ensure interfaces are up/up. 2. Verify same RIPng process name (RIP-LAB) across all routers. 3. Set clock rate 64000 on DCE serial interfaces if needed. 4. Confirm correct default gateways on PCs. 5. Use 'debug ipv6 rip' to monitor updates.

Author: Rorisang Lesedi Moremogolo