

NST21022 - Practical for Network Switching and Routing

Department of Information & Communication Technology

Faculty of Technology, SEUSL

Lab Sheet – 17

Title: Configure IPv4 and IPv6 Default and Static Routes

Aim:

- Getting familiar with IPv4 and IPv6 Default and Static Routes

Task:

- Configure IPv4 Default Routes
- Configure IPv4 Static Routes
- Configure IPv4 Host Routes
- Configure IPv6 Default Routes
- Configure IPv6 Static Routes
- Configure IPv6 Host Routes

Activities

Use “NST21022 Labsheet 19.pka” file

Addressing Table

Device	Interface	IP address / Prefix
R1	G0/0/0	192.168.3.1/24
		2001:DB8:ACAD:3::1/64
	S0/1/0	10.1.1.1/24
		2001:DB8:ACAD:4::1/64
R2	G0/0/0	192.168.2.1/24
		2001:DB8:ACAD:2::1/64
	G0/0/1	192.168.1.1/24
		2001:DB8:ACAD:1::1/64
	S0/1/0	10.1.1.2/24
		2001:DB8:ACAD:4::2/64
R3	S0/1/1	10.1.2.2/24
		2001:DB8:ACAD:5::2/64
	G0/0/0	192.168.3.2/24
		2001:DB8:ACAD:3::2/64
PC-1	NIC	192.168.1.10/24
		2001:DB8:ACAD:1::10/64
PC-2	NIC	192.168.2.10/24
		2001:DB8:ACAD:2::10/64
Server	NIC	192.168.3.10/24
		2001:DB8:ACAD:3::10/64

Exercise 01: Configure IPv4 Routes

1. Configure IPv4 Default Routes

- a. On R1, configure **next hop** IPv4 default static route. This primary default router should be through router R2.

R1(config)#ip route 0.0.0.0 0.0.0.0 10.1.1.2

- b. On R1, configure **directly connected** IPv4 floating static default route. This default route should be through router R3. It should have an administrative distance of 5.

R1(config)#ip route 0.0.0.0 0.0.0.0 G0/0/0 5

2. Configure IPv4 Static Routes

- a. On R1, configure a **next hop** IPv4 static route to the LAN 1 network through R2.

R1(config)#ip route 192.168.1.0 255.255.255.0 10.1.1.2

- b. On R1, configure a **next hop** IPv4 static route to the LAN 2 network through R3

R1(config)#ip route 192.168.2.0 255.255.255.0 10.1.1.2

- c. On R1, configure a **directly connected** IPv4 floating static route to the LAN 1 network through R3, use administrative distance 5.

R1(config)#ip route 192.168.1.0 255.255.255.0 G0/0/0 5

- d. On R1, configure a **directly connected** IPv4 floating static route to the LAN 2 network through R3, use administrative distance 5.

R1(config)#ip route 192.168.2.0 255.255.255.0 G0/0/0 5

3. Configure IPv4 Host Routes

- a. On R2, configure an IPv4 **next hop** host route to the Server through R1.

R2(config)#ip route 192.168.3.10 255.255.255.255 10.1.1.1

- b. On R2, configure an IPv4 **directly connected** floating host route to the Server through R3, use administrative distance 5.

R2(config)#ip route 192.168.3.10 255.255.255.255 S0/1/1 5

Exercise 02: Configure IPv6 Routes

1. Configure IPv6 Default Routes

- a. On R1, configure **next hop** IPv6 default static route. This primary default router should be through router R2.

R1(config)#ipv6 route ::0 2001:DB8:ACAD:4::2

- b. On R1, configure **directly connected** IPv6 floating static default route. This default route should be through router R3. It should have an administrative distance of 5.

R1(config)#ipv6 route ::0 G0/0/0 5

2. Configure IPv6 Static Routes

- a. On R1, configure a **next hop** IPv6 static route to the LAN 1 network through R2.

R1(config)#ipv6 route 2001:DB8:ACAD:1::/64 2001:DB8:ACAD:4::2

- b. On R1, configure a **next hop** IPv6 static route to the LAN 2 network through R3

R1(config)#ipv6 route 2001:DB8:ACAD:2::/64 2001:DB8:ACAD:4::2

- c. On R1, configure a **directly connected** IPv6 floating static route to the LAN 1 network through R3, use administrative distance 5.

R1(config)#ipv6 route 2001:DB8:ACAD:1::/64 G0/0/0 5

- d. On R1, configure a **directly connected** IPv6 floating static route to the LAN 2 network through R3, use administrative distance 5.

R1(config)#ipv6 route 2001:DB8:ACAD:2::/64 G0/0/0 5

3. Configure IPv6 Host Routes

- a. On R2, configure an IPv6 **next hop** host route to the Server through R1.

R2(config)#ipv6 route 2001:DB8:ACAD:3::10/128 2001:DB8:ACAD:4::1

- b. On R2, configure an IPv6 **directly connected** floating host route to the Server through R3, use administrative distance 5.

R2(config)#ipv6 route 2001:DB8:ACAD:3::10/128 S0/1/1 5