Addressing Table

Device	Interface	IP Address / Prefix	Default Gateway
R2	G0/0/0	10.0.4.1 /24	N/A
		2001:db8:acad:4::1 /64	
		fe80::2:a	
	G0/0/1	10.0.5.1 /24	
		2001:db8:acad:5::1 /64	
		fe80::2:b	
	S0/1/0	10.0.3.2 /24	
		2001:db8:acad:3::2 /64	
		fe80::1:c	
	S0/1/1	209.165.200.225 /30	
		2001:db8:feed:224::1/64	
		fe80::1:d	
PC1	NIC	10.0.1.10 /24	10.0.1.1
		2001:db8:acad:1::10 /64	fe80::1:a
PC2	NIC	10.0.2.10 /24	10.0.2.1
		2001:db8:acad:2::10 /64	fe80::1:b
PC3	NIC	10.0.4.10 /24	10.0.4.1
		2001:db8:acad:4::10 /64	fe80::2:a
PC4	NIC	10.0.5.10 /24	10.0.5.1
		2001:db8:acad:5::10 /64	fe80::2:b

Objectives

Part 1: Configure Devices and Verify Connectivity

- Assign static IPv4 and IPv6 addresses to the PC interfaces.
- Configure basic router settings.
- Configure the router for SSH.
- Verify network connectivity.

Part 2: Display Router Information

- Retrieve hardware and software information from the router.
- Interpret the startup configuration.
- Interpret the routing table.
- Verify the status of the interfaces.

Background / Scenario

This activity requires you to configure the **R2** router using the settings from the Addressing Table and the specifications listed. The **R1** router and the devices connected to it have been configured. This is a comprehensive review of previously covered IOS router commands. In Part 1, you will complete basic configurations and interface settings on the router. In Part 2, you will use SSH to connect to the router remotely and utilize the IOS commands to retrieve information from the device to answer questions about the router. For review purposes, this lab provides the commands necessary for specific router configurations.

Part 2: Display Router Information

In Part 2, you will use **show** commands from an SSH session to retrieve information from the router.

Step 1: Establish an SSH session to R2.

From the command line of PC3 open an SSH session to the **R2** G0/0/0 IPv6 address and log in as **SSHadmin** with the password **55Hadm!n.**

Step 2: Retrieve important hardware and software information.

a. Use the **show version** command to answer questions about the router.

What is the name of the IOS image that the router is running?

- isr4300-universalk9.03.16.05.S.155-3.S5-ext.SPA.bin.

How much non-volatile random-access memory (NVRAM) does the router have?

- 32768K bytes

How much Flash memory does the router have?

- 3223551K bytes

b. The **show** commands often provide multiple screens of outputs. Filtering the output allows a user to display certain sections of the output. To enable the filtering command, enter a pipe (|) character after a **show** command, followed by a filtering parameter and a filtering expression. You can match the output to the filtering statement by using the **include** keyword to display all lines from the output that contain the filtering expression. Filter the **show version** command, using **show version | include register** to answer the following question.

What is the boot process for the router on the next reload?

- The answers may differ. In most cases (0x2102), the router will boot normally, load the IOS from Flash memory, and, if present, load the startup configuration from NVRAM. If the config register is set to 0x2142, the router will skip the startup configuration and go straight to the user-mode command prompt. If the first boot fails, the router enters ROMMON mode.

Step 3: Display the running configuration.

a. Use the **show running-config** command on the router to answer the following questions filtering for lines containing the word "password".

How are passwords presented in the output?

- Passwords are encrypted

b. Use the **show running-config | begin vty** command.

What is the result of using this command?

- The running configuration output is presented to the user, beginning with the line containing the first instance of the filtering expression.

Note: A more specific command would be **show running-config | section vty**; however, the current version of Packet Tracer does not support the **section** filtering command.

Step 4: Display the routing table on the router.

Use the **show ip route** command on the router to answer the following questions.

What code is used in the routing table to indicate a directly connected network?

- C for connected or L for local.

How many route entries are coded with a C code in the routing table?

- 4

Step 5: Display a summary list of the interfaces on the router.

a. Use the **show ip interface brief** command on the router to answer the following question.

What command changed the status of the Gigabit Ethernet ports from administratively down to up?

- No shut

What filtering command would you use to display only the interfaces with addresses assigned?

- show ip interface brief | exclude unassigned

What is the meaning of the [up/up] part of the output?

- The interface is working.