Southern New Hampshire University

CYB 210 Module Five Packet Tracer Activity Guidelines and Rubric

Overview

In this activity, you will use Packet Tracer to simulate the reconfiguration of devices in a reference network. To complete this activity, you will need to revise an existing network by modifying IP addresses (both static and dynamic addressing) and configuring network services to ensure the new network meets the given requirements.

Scenario

Your manager has tasked you with creating a simulated proof of concept for a reconfigured network that meets the following requirements:

- Admin network must be assigned static IP addresses in a new range
- Newly added server must be configured for DNS/DHCP
- Student network must be assigned IP addresses via DHCP rather than the current static address configuration
- Network address translation (NAT) and Routing Information Protocol (RIP) must be configured to route traffic properly

Your manager has provided the following files for you to complete this project:

- Current Network State
    - Current Network Topology/Simulation file (Packet Tracer)
    - Current Network Configuration (Excel spreadsheet)
- Reconfigured Network
    - New Network Configurations (Excel spreadsheet)

The New Network Configurations file contains three tabs (Main Configuration, RIP and NAT, and DHCP and DNS), each with specific requirements and guidance for the new network. Your manager has asked for specific evidence for each area of the new network configuration and some brief guidelines of the steps you took in Packet Tracer to complete each area. This information will be provided to the network administrators who will complete the actual network configuration. Refer to the New Network Configurations spreadsheet and the following table to guide you in your submission.

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Task	Evidence	Supporting Resources
Configure Static Routing	Screenshots of IP Configuration dialog and a brief explanation of steps taken	*Packet Tracer Network Simulator*, Chapter 4
Configure RIP	Screenshot of RIP Config tab and a brief explanation of steps taken	*Packet Tracer Network Simulator*, Chapter 6
Configure NAT	Screenshot of NAT translations table verifying that NAT is active (between two subnets) and a brief explanation of the steps taken **Hint**: Ping one of your admin PCs from the router command line to populate the NAT translations table before taking the screenshot.	Configuring Network Address Translation: Getting Started
Configure DHCP	Two screenshots: The DHCP Config tab and at least one host device displaying the IP Configuration window with an appropriate IP address obtained via DHCP; also include a brief explanation of the steps taken	**Video**: Setup Application Layer Services With Servers in Packet Tracer – Part One (11:39)
Configure DNS	Screenshot of DNS Config tab and a brief explanation of the steps taken	**Video**: Setup Application Layer Services With Servers in Packet Tracer – Part One (11:39)
Network Topology	Screenshot of the new network displaying functional communication and IP addresses labeled for all devices	

Prompt

Submit a document with screenshots of your completed configuration interface windows, your final topology, and explanations of the steps you took to complete the modifications. Specifically, you must address the **critical elements** listed below.

I. Change **static routing** (subnet masks, IP addressing, and default gateway) for the new network configuration. Submit a screenshot of the IP Configuration dialog window and a brief explanation of the steps you took.

II. Change **RIP** to accommodate two new network configurations. Submit a screenshot of the RIP Configuration dialog window and a brief explanation of the steps you took.

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III. Configure **NAT** on the router. Submit a screenshot of the NAT translations table and a brief explanation of the steps you took.
IV. Configure **DHCP services**. Submit two screenshots: The DHCP Config tab and at least one host device displaying the IP Configuration window with an appropriate IP address obtained via DHCP. Also include a brief explanation of the steps taken.
V. Configure **DNS** for the server name and IP address. Submit a screenshot of the DNS Config tab and a brief explanation of the steps you took.
VI. Label **all devices and networks** with the IP addresses. Submit a screenshot of the entire network topology.

Rubric

Guidelines for Submission: Your submission should include two files. Your **network modification proof of concept** should be a Word document containing all relevant screenshots and explanations. Use a filename that includes the course code, the assignment title, and your name—for example, CYB_100_Project_One_Neo_Anderson.docx. You should also submit your **Packet Tracer file** using the same naming convention.

Critical Elements	Proficient (100%)	Needs Improvement (70%)	Not Evident (0%)	Value
Static Routing: Configuration	Provides a screenshot with at least one IP Configuration dialog window evidencing the correct configuration of the static routing with appropriate subnet masks, IP address, and default gateway	Provides a screenshot, but the configuration is incomplete or contains errors	Does not submit a screenshot, or the screenshot is irrelevant	9
Static Routing: Explanation	Explains the steps taken to properly configure and test functionality in the simulated network	Explains the steps taken to configure the simulated network, but the explanation is incomplete, contains errors, or does not provide steps to test functionality	Does not explain the steps taken, or explanation is irrelevant	9
RIP: Configuration	Provides a screenshot of the RIP Configuration dialog window evidencing the correct configuration of RIP	Provides a screenshot, but the configuration is incomplete or contains errors	Does not submit a screenshot, or the screenshot is irrelevant	9
RIP: Explanation	Explains the steps taken to properly configure and test functionality in the simulated network	Explains the steps taken to configure the simulated network, but the explanation is incomplete, contains errors, or does not provide steps to test functionality	Does not explain the steps taken, or the explanation is irrelevant	9
NAT: Configuration	Provides a screenshot of the NAT Configuration dialog window evidencing the correct configuration of NAT on the router	Provides a screenshot, but the configuration is incomplete or contains errors	Does not submit a screenshot, or the screenshot is irrelevant	9
NAT: Explanation	Explains the steps taken to properly configure and test the functionality in the simulated network	Explains the steps taken to configure the simulated network, but the explanation is incomplete, contains errors, or does not provide steps to test functionality	Does not explain the steps taken, or the explanation is irrelevant	9

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Critical Elements	Proficient (100%)	Needs Improvement (70%)	Not Evident (0%)	Value
DHCP: Configuration	Provides two screenshots evidencing the correct configuration of the DHCP server, including a DHCP Configuration dialog window and at least one host device displaying the IP configuration window with an appropriate IP address obtained via DHCP	Provides screenshots, but configuration is incomplete or contains errors, or does not provide both screenshots	Does not submit a screenshot, or the screenshot is irrelevant	9
DHCP: Explanation	Explains the steps taken to properly configure and test functionality in the simulated network	Explains the steps taken to configure the simulated network, but the explanation is incomplete, contains errors, or does not provide steps to test functionality	Does not explain the steps taken, or the explanation is irrelevant	9
DNS: Configuration	Provides screenshot of DNS Configuration dialog window evidencing the correct configuration of RIP	Provides a screenshot, but configuration is incomplete or contains errors	Does not submit a screenshot, or the screenshot is irrelevant	9
DNS: Explanation	Explains the steps taken to properly configure and test functionality in the simulated network	Explains the steps taken to configure the simulated network, but the explanation is incomplete, contains errors, or does not provide steps to test functionality	Does not explain the steps taken, or the explanation is irrelevant	9
Network Topology	Provides screenshot of the entire functional network topology with all devices and networks labeled according to the specifications	Provides a screenshot, but configuration is incomplete or contains errors	Does not submit a screenshot, or the screenshot is irrelevant	10
			Total	**100%**