Lab 04 – IPv4 Static Routing

1. Create a network topology within Cisco Packet Tracer using the topology from class as follows:

   - ✓ PC1's FastEthernet connection is connected to interface F0/5 on Switch1
   - ✓ PC2's FastEthernet connection is connected to interface F0/5 on Switch2
   - ✓ PC3's FastEthernet connection is connected to interface F0/5 on Switch3
   - ✓ PC4's FastEthernet connection is connected to interface F0/5 on Switch4
   - ✓ Switch1's interface F0/6 is connected to interface F0/0 on Router1
   - ✓ Switch2's interface F0/6 is connected to interface F0/0 on Router2
   - ✓ Switch3's interface F0/6 is connected to interface F0/0 on Router3
   - ✓ Switch4's interface F0/6 is connected to interface F0/0 on Router4
   - ✓ PC1's RS232 connection is connected to the console line on Router1
   - ✓ PC2's RS232 connection is connected to the console line on Router2
   - ✓ PC3's RS232 connection is connected to the console line on Router3
   - ✓ PC4's RS232 connection is connected to the console line on Router4
   - ✓ PC1's IP Address is 192.168.47.3/27
   - ✓ PC2's IP Address is 192.168.47.67/27
   - ✓ PC3's IP Address is 192.168.47.131/27
   - ✓ PC4's IP Address is 192.168.47.195/27
   - ✓ Router1's interface F0/0 IP Address is 192.168.47.1/27
   - ✓ Router2's interface F0/0 IP Address is 192.168.47.65/27
   - ✓ Router3's interface F0/0 IP Address is 192.168.47.129/27
   - ✓ Router4's interface F0/0 IP Address is 192.168.47.193/27
   - ✓ Router1's interface S0/0/0 (DCE) is connected to Router2's interface S0/0/1
   - ✓ Router2's interface S0/0/0 (DCE) is connected to Router3's interface S0/0/1
   - ✓ Router3's interface S0/0/0 (DCE) is connected to Router4's interface S0/0/1
   - ✓ Router1's interface S0/0/0 IP Address is 192.168.47.33/27
   - ✓ Router2's interface S0/0/1 IP Address is 192.168.47.34/27
   - ✓ Router2's interface S0/0/0 IP Address is 192.168.47.97/27
   - ✓ Router3's interface S0/0/1 IP Address is 192.168.47.98/27
   - ✓ Router3's interface S0/0/0 IP Address is 192.168.47.161/27
   - ✓ Router4's interface S0/0/1 IP Address is 192.168.47.162/27

   You should specify all of your IP Addresses and subnet masks (in bit notation) within individual text boxes on your topology diagram for each interface or device that has one assigned.

2. Using the network topology from above, complete the following:

   a) On each PC, configure:
      - ✓ IP Address
      - ✓ Subnet Mask
      - ✓ Default Gateway

   b) On each Router, configure:
      - ✓ hostname
      - ✓ an unencrypted privileged mode password of 'cisco'
      - ✓ enable 'logging synchronous' on the console line
      - ✓ password of 'cisco' on the console line
      - ✓ enable a login prompt to appear when consoling into the router from the PC
      - ✓ the IP Address and Subnet Mask of the interfaces in use
      - ✓ enable the interfaces in use
      - ✓ configure the clock rate of 64K on the DCE interfaces
      - ✓ display your interfaces in use
      - ✓ display your routing table

   c) Verify each PC is able to reach its default gateway (ie: the closest router to that PC that is also on the same subnet/network that the PC belongs to) in the topology using the Windows CLI commands you learned in class. You may provide a screen capture of the output within your lab journal for the verification. Capture this output in a screenshot.

   d) Configure static routing using the previously defined static route method you learned in class. In other words, do not configure "pass the buck" routing. Instead you will be using recursive routing. You should also not use the outbound interface for your static routes. Capture this output in a screenshot.

   e) Verify connectivity from the router (ie: Document how far you are able to reach from each router via a ping). You should have full connectivity with this scenario! Capture this output in a screenshot.

   f) Verify connectivity from the PC (ie: Document how far you are able to reach from each PC via a ping AND tracert). You should have full connectivity with this scenario! Capture this output in a screenshot.

   g) Save this file as "YourFirstNameYourLastName-Static-Routing.pkt"

Please NOTE: The router model you will be using in Cisco Packet Tracer is the 2811 Router. Remember to add the WIC-2T modules in the bottom right to module slots (Slot 0, Module 0 and Slot 0, Module 1). The switch model you will be using is the 2960 Layer 2 Switch.

3. Create a lab report document and include the following information:

    a) **Description:** Brief Description of what topic or technology you are concentrating on within this lab. Keep this short and to the point. For this assignment you can discuss routing and the different methods e.g. static…

    b) **Topology/Diagram:** Take the original topology you created within Cisco Packet Tracer and take a screenshot of the topology. Paste this into your Document. Please do not submit a screen capture of your entire screen or window. This should ONLY be of the topology. Make sure you include IP Addresses in your topology with the interfaces showing.

    c) **Syntax:** Table of Command Syntax and the associated description (ie: If you issued a cli command within the Cisco IOS or within the Windows CMD prompt, list it here and write a description as to what it does in your own words) – please make sure this is written in a nice, easy-to-read table format. (CLI Command on the left, description on the right, and (optionally) add another column for what mode of Cisco IOS you are in when issuing the CLI command.)

    d) **Verification:** This is screenshot based. You will be asked to provide screenshots to verify that you have completed the assignment correctly. Please only include the screenshots I ask of you. Make sure you answer any questions asked of you within this lab. These are listed above within the specifications of the lab.

    e) **Conclusion:** Wrap up your lab report with a short conclusion. If something did not work, state it. If everything did work successfully, state that as well.

    Please NOTE: Your submission should not include one screenshot per page. Please maximize the space on each page. The lab report should (most likely) be less than four or five pages – It could even be two to three pages in length depending upon the screenshots I ask you to submit for verification. Please make sure the screenshots are legible though!

4. Submit your lab report as a .pdf file and your .pkt to the appropriate assignment within iLearn.

(Please do not zip these files nor should you submit multiple .pngs, .gifs, .jpgs, etc…)

Good Luck with your lab!