Ankara University

Department of Computer Engineering

BLM3032

LAB 1

SECTION 1

PC Network TCP/IP Configuration Objective

Objective:

- Identify tools used to discover a computer network configuration
- Gather information including connection, host name, Layer 2 MAC address and Layer 3 TCP/IP network address information.
- Compare network information to other PCs on the network

Step 1: Connect into the Internet

Step 2: Gather TCP/IP configuration information

Use the Start menu to open the Command Prompt, an MS-DOS-like window. Press **Start** >**Programs > Accessories > Command Prompt or Start > Programs > Command Prompt**

OR

Start>*(Write)* "cmd"

Step 3: Record the following TCP/IP information for this computer (use **ipconfig** command)

- IP address:
- Subnet Mask:
- Default Gateway:

Step 4: Compare the TCP/IP configuration of this computer to others on the LAN

If this computer is on a LAN, compare the information of several machines.

- Are there any similarities?
- What is similar about the IP addresses?
- What is similar about the default gateways?

Step 5: Check additional TCP/IP configuration information

To see detailed information, type **ipconfig /all** and press **Enter**.

Step 6: Close the screen.

SECTION 2

Using ping and tracert from a Workstation

Objective:

- Learn to use the TCP/IP Packet Internet Groper (**ping**) command from a workstation.
- Learn to use the trace route (**tracert**) command from a workstation.
- Observe name resolution occurrences using WINS and/or DNS servers

Step 1: Establish and verify connectivity to the Internet

Step 2: Access the command prompt

Use the Start menu to open the Command Prompt window. Pres **Start > Programs > Accessories > Command Prompt** or **Start > Programs > Command Prompt** or Start **> All Programs > Command Prompt**

Step 3: ping the IP address of another computer

Step 4: ping the IP address of the default gateway

Step 5: ping the IP address of a DHCP or DNS servers

Step 6: ping the Loopback IP address of this computer

Type the following command: **ping 127.0.0.1**

The 127.0.0.0 network is reserved for loopback testing. If the ping is successful, then TCP/IP is properly installed and functioning on this computer

Step 7: ping the Google web site

Type **ping www.google.com** and press Enter

Step 8: Trace the route to the Cisco web site

Type **tracert www.cisco.com** and press **Enter**

SECTION 3 (HOMEWORK)

Decimal to Binary Conversion

Objective:

- Learn to convert decimal values to binary values.
- Practice converting decimal values to binary values.

Step 1: Convert the following decimal values to binary values:

a. 123

b. 202

c. 67

d. 116.127.71.3

e. 255.255.255.0

f. 12.101.9.16

SECTION 4 (HOMEWORK)

Binary to Decimal Conversion

Objective:

- Learn the process of converting binary values to decimal values.
- Practice converting binary values to decimal values.

Step 1: Convert the following binary values to decimals:

a. 11111111

b. 11010011

c. 11101001.00011011.10000000.10100100

d. 10101010.00110100.11100110.00010111

SECTION 5 (HOMEWORK)

Hexadecimal Conversions

Objective:

- Learn the process to convert hexadecimal values to decimal and binary values.
- Learn the process to convert decimal and binary values to hexadecimal values.
- Practice converting between decimal, binary and hexadecimal values.

Step 1: Convert the following values to the other two forms:

	Decimal	Hex	Binary
1		a9	
2		FF	
3		E7-63-1C	
4	53		
5	115		
6	212.65.119.45		
7			10101010
8			110

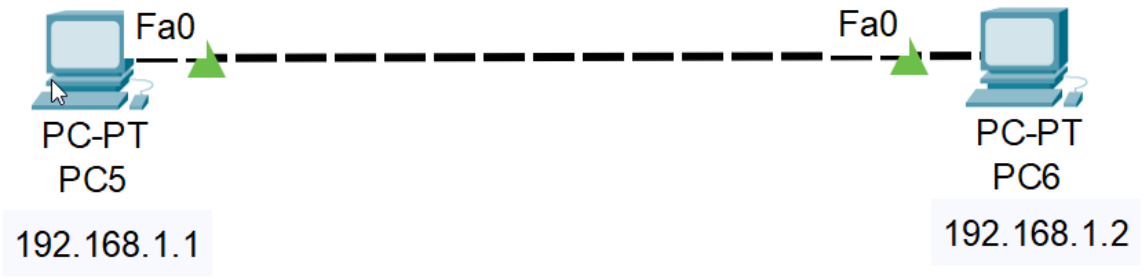
SECTION 6

What is Cisco Packet Tracer?

- Packet Tracer is a network design, simulation and modelling tool that allows you to develop your skill set in networking, cybersecurity, and the Internet of Things (IoT).
- It allows you to model complex systems without the need for dedicated equipment.
- With Packet Tracer you can choose to build a network from scratch or use a pre-built sample network.
- Cisco Packet Tracer is a free software.
- You can download it by following the "How to download CPT?" file.
- Let's look at the CPT!

SECTION 7

Establishing a Connection Between Two Computers



Objective:

- Establish a connection between two PCs. (Use copper cross-over cable)
- Ping!

HOMEWORK:

- **Establish above schema on Cisco Packet Tracer.**
- **Add your names below both PC's to prove that your own work.**
- **Take a screenshot.**
- **Load your homework as a ONE pdf file.**
- **You have one week!**