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Roll. No.: 08

Batch: A1

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Title: DHCP, DNS and Web Server configuration

Aim:

Configure network using Dynamic Host Configuration Protocol (DHCP), DNS and Web server Use Ping utility to test connectivity

Objectives:

1. To learn the DHCP installation and understand the practical use of DHCP, DNS and Web server.
2. To learn the mechanism to access the remote machine by using ping utility to test connectivity.

Steps to implement:

1) Launch Cisco Packet Tracer and add laptops and computers.
2) Configure Wireless Router WRT300N IP Pool: 192.168.10 - 192.168.1.100 Subnet Mask: 255.255.255.0
3) Opened the Physical View of the PC, a. Turned the PC OFF.
b. Changed the wired LAN card module to the wireless LAN card module.
c. Started the computer.
4) The PC connects to the wireless router automatically.
5) Go to Wireless Router Options GUI and enable Automatic Configuration-DHCP.
a. Enter IP address 192.168.0.1 and Subnet Mask 255.255.255.0 b. Enable DHCP Server c. Enter Start IP address 192.168.0.10 d. Enter Maximum number of devices as 4. e. Saved the Modifications
6) Navigate to PC OptionsDesktopIP Configuration.
a. Switch the IP Configuration from Static to DHCP (for 1 second, then switch back to DHCP) b. This allows the PC to request DHCP, which, if successful, allocates a specific IP Address, Subnet Mask, and Default Gateway.
7) Repeat Step 7 on the remaining devices.
8) Assign IP addresses and Subnet Masks to each computer.

1) Navigate to Wireless Router OptionsGUIWirelessWireless Security a.
WPA2 Personal as the security mode b. AES encryption
c. Password: password123 (Note: we can keep anything)
d. Saved the Configuration.
2) Clicked the PCDesktop > PCWirelessConnectRefresh button.
a. After pressing the refresh button, we can see that our network is set to "Default" with specific signal strength. (In this case, 87%) b. We choose a network and press the Connect Button.
c. Type in the Pre-shared Key/Password. (In this case, password123) and press the Connect button.
d. The PC/Laptop connects to the network wirelessly.

Writeup:

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CN lab Assignment

DHCP, DNS, Web Server Config

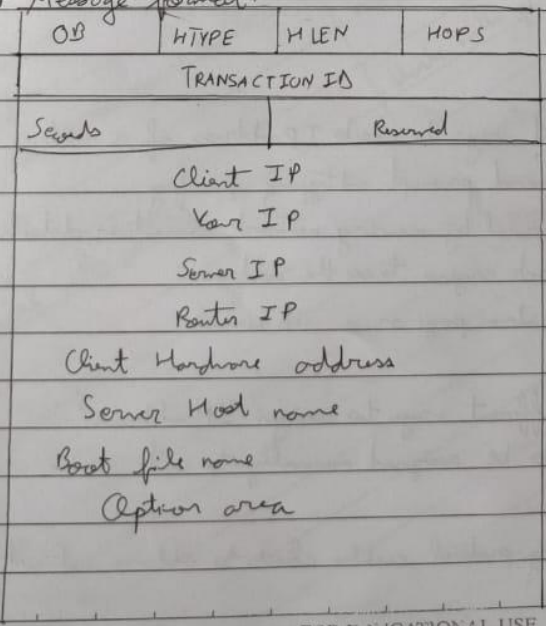
Theory:

i) Dynamic Host Configuration Protocol (DHCP): It is a network management protocol used to dynamically assign an IP address to many devices on node in a network. It automates and centrally manages the config. It is the default protocol used by most routers and networking equipment

ii) Need for DHCP:

- Every device on a TCP/IP -based network must have a unique IP address to access the network
- Without DHCP, IP address of a new computer will have to be configed manually

iii) DHCP Message format:



(iv) DHCP Operations:

- It manages the provision of all the nodes on devices added or dropped from the network
- It maintains the unique IP address of the host in a DHCP server
- It sends a request to the server whenever a client/~~host~~ node/device connects to the network
- The server acknowledges by providing an IP address to the client/node/device

(v) DNS and Email server:

- DNS stands for domain name system and is a protocol for exchanging data on the internet
- Email address is mated to domain name (That follows the @) and this needs to be matched to an IP address for it to be able to send data
- The mail server uses DNS to match the address on the envelope to its destination and then delivers the mail
- The public key is required to decode your DKIM sign can be accessed from the DNS

FAQ's

1) What are different ways to check IP address of a machine?

→ • By using the command prompt and typing ipconfig
- In the network panel by viewing network connection details
- By using the search engine to see the address
- By accessing the admin page on a web server

2) What are the different ways to assign IP address?

→ • Static IP needs to be assigned manually to each device when it connects to the network
- Dynamic Host config protocol enables clients to obtain network settings automatically

3) What do you mean by private and public IP address? Specify the range

→ • A private IP address is a range of non-internet facing IP addresses used in an internal network. They are provided by network devices like routers.

Class A 10.0.0.0 to 10.255.255.255

Class B 172.16.0.0 to 172.31.255.255

Class C 192.168.0.0 to 192.168.255.255

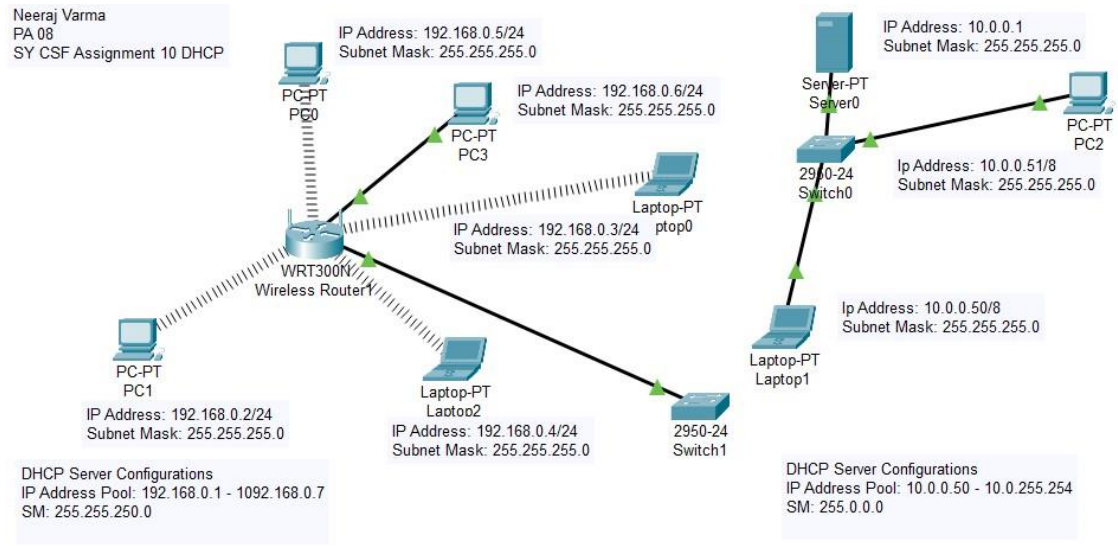
• A public IP is the address that is used to communicate outside the network It is assigned by the ISP. All addresses having private IPs can be used as public IP's

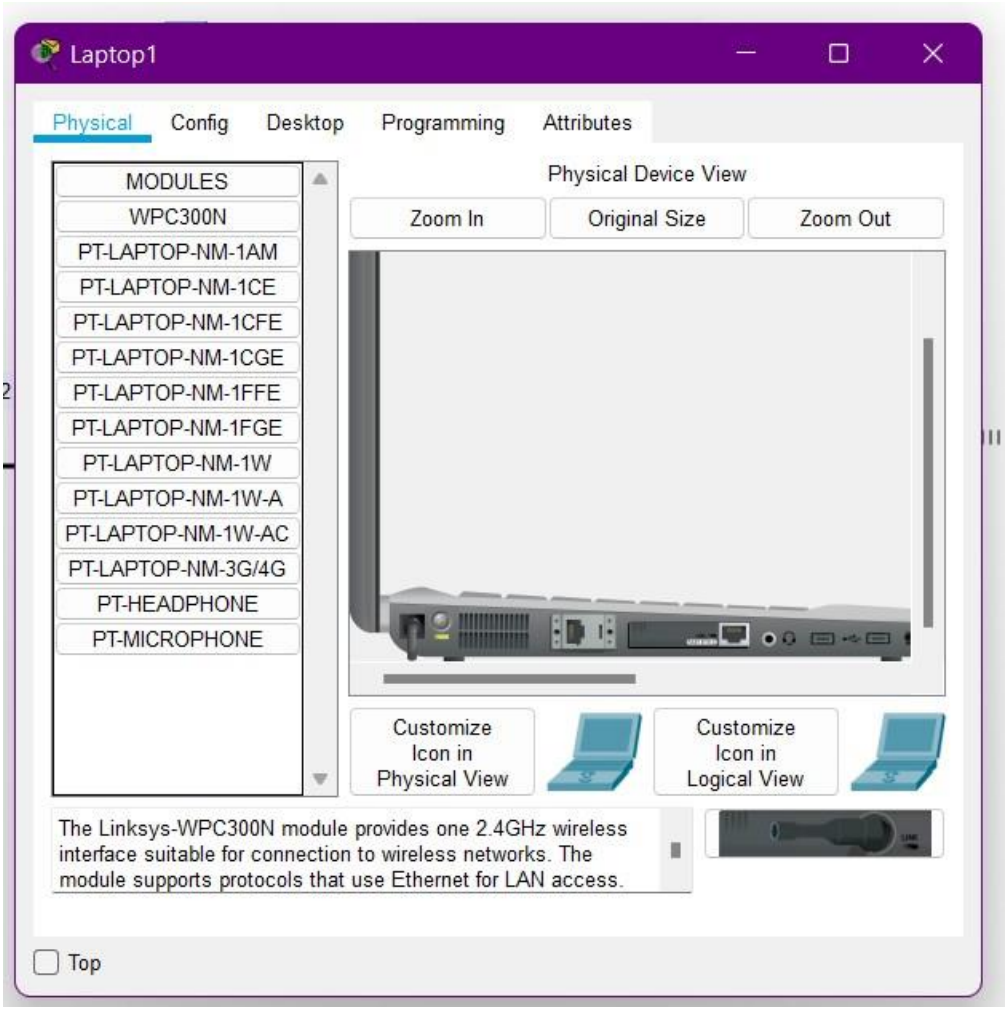
4) Difference between DNS and DHCP

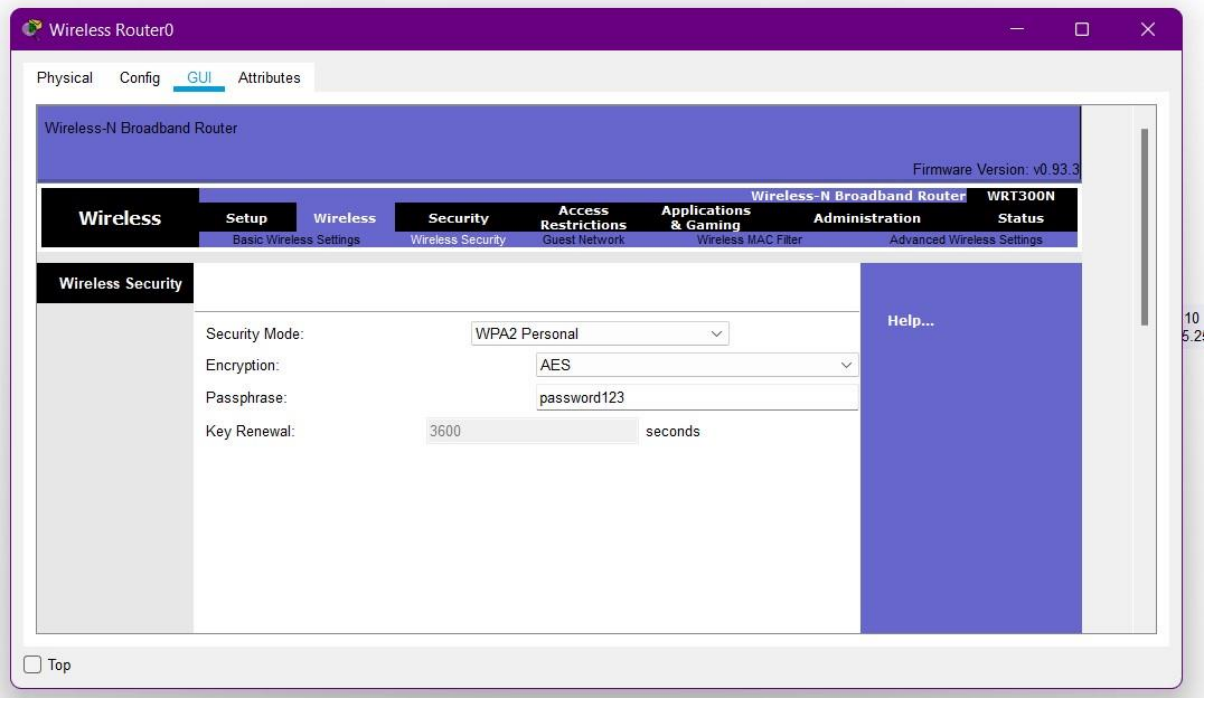
→

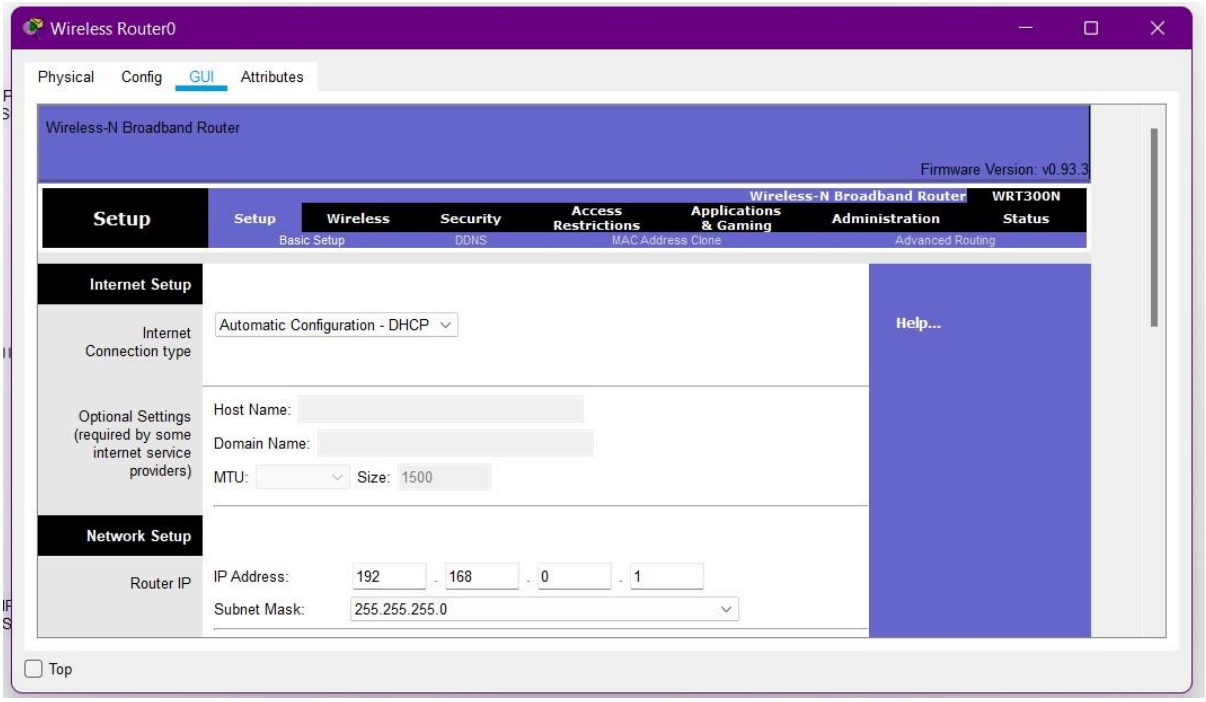
DNS	DHCP
• Stands for domain name system	• While DHCP stands for Dynamic Host Config. Protocol
• Works with port 53	• Works with ports 67 and 68
• Supports TCP and UDP	• Supports only UDP
• Decentralized system	• Centralized system

Screenshots:






Wireless Router0
Physical
Config
GUI
Attributes
Wireless-N Broadband Router
Firmware Version: v0.93.3
Wireless-N Broadband Router WRT300N
Wireless
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Basic Wireless Settings
Wireless Security
Guest Network
Wireless MAC Filter
Advanced Wireless Settings
Wireless Security
Security Mode:
WPA2 Personal
Encryption:
AES
Passphrase:
password123
Key Renewal:
3600
seconds
Help...
Top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Setup
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Basic Setup
DDNS
MAC Address Clone
Advanced Routing
Internet Setup
Internet Connection type
Automatic Configuration - DHCP
Optional Settings (required by some internet service providers)
Host Name:
Domain Name:
MTU:
Size:
1500
Network Setup
Router IP
IP Address:
192
168
0
1
Subnet Mask:
255.255.255.0
Help...
Top