

EX.NO :04	Investigation of LAN – HTTP, DNS, DHCP, TELNET	REG.NO: URK22AI1015
DATE:16 -08 -2023		

AIM

To design a network topology to perform the initial router configurations required for connectivity by using static IP addresses. To configure DNS and investigate the working of DNS and HTTP. Dynamically obtain IP addresses using DHCP protocol and configure VTY to remotely access the router from PC using TELNET.

DESCRIPTION

HTTP: Hypertext Transfer Protocol, is a versatile and stateless communication protocol that can be extended for various purposes through the addition of custom request methods, error codes, and headers. It operates over the TCP/IP framework and serves as the backbone for transmitting data across the World Wide Web.

DNS: Domain Name System, functions as the internet's name service, converting user-friendly domain names into numerical Internet Protocol (IP) addresses.

DHCP: Dynamic Host Configuration Protocol, operates as a client/server protocol, automating the assignment of an Internet Protocol (IP) address and distributing other essential configuration details like subnet masks and default gateways to IP hosts.

TELNET: Telnet serves as a network protocol employed for virtual computer access, facilitating a two-way, text-based communication channel between machines. It operates on the User Command Transmission Control Protocol/Internet Protocol (TCP/IP) networking standard for establishing remote sessions.

PROCEDURE (DNS)

1. Click 'Services' in Server
2. Select 'DNS' from the panel
3. Give a name (www.colab.edu) and IP address of the server
4. Click 'add'
5. Put the DNS address in the IP configuration tab of the end device
6. To access it ,click on 'web browser' on any end device and type the name assigned in the URL

PROCEDURE (DHCP)

1. Click 'DHCP' from the 'Services' In 'Server'
2. Enable it
3. Give its default gateway
4. Give the DNS Server address of the DNS server
5. Give range and click 'add'
6. To access it click on any end devices
7. In IP configuration enable DHCP

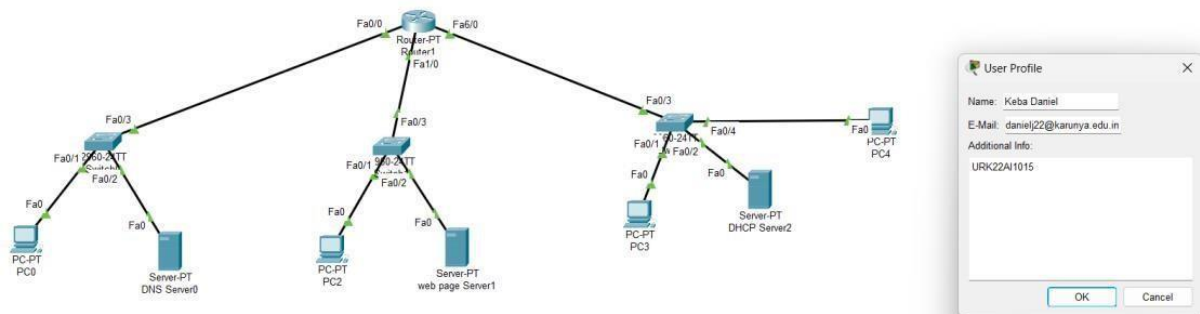
PROCEDURE (TELNET)

1. In the CLI of the router give the commands
2. Assign router password
3. Assign vty passwords
4. Open command prompt of the remote end device
5. Type telnet and gateway address of the router
6. Type the password and you can access the router via the remote end devices

TELENT COMANDS

```
Router(config)# en password 1606
Router(config)#exit
Router(config)#line vty 04
Router(config)#password 16062005
Router(config)#login
```

TOPOLOGY DIAGRAM

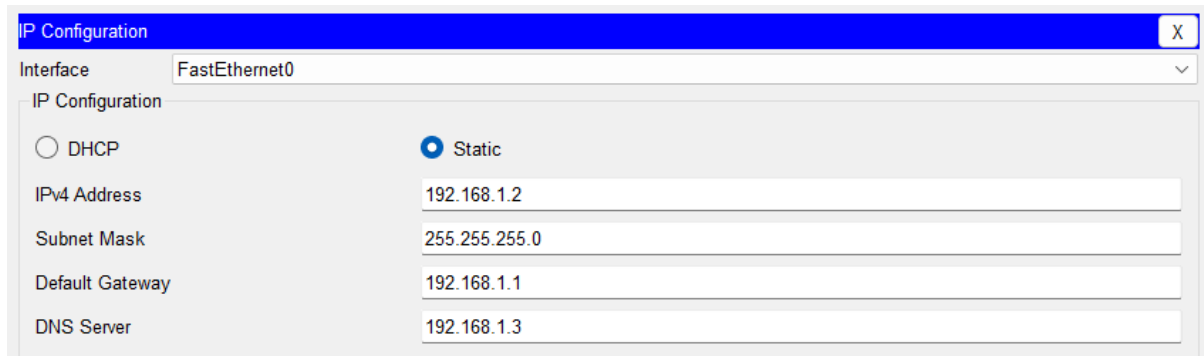


ADDRESSING TABLE

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	Fa0/0	192.168.1.1	255.255.255.0	NA
	Fa1/0	192.168.2.1	255.255.255.0	NA
	Fa6/0	192.168.3.1	255.255.255.0	NA
PC1	NIC	192.168.1.2	255.255.255.0	192.168.1.1
Server	vty	192.168.1.3	255.255.255.0	192.168.1.1
PC2	NIC	192.168.2.2	255.255.255.0	192.168.2.1
Server 2	vty	192.168.2.3	255.255.255.0	192.168.2.1
PC3	NIC	192.168.3.2	255.255.255.0	192.168.3.1
Lap	NIC	192.168.3.3	255.255.255.0	192.168.3.1

OUTPUT

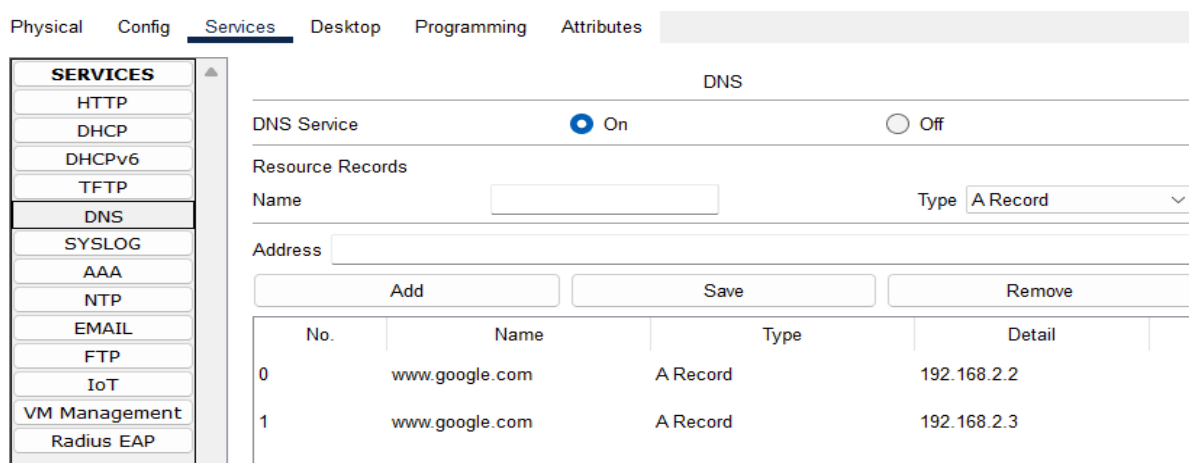
Screenshot of static IP address for any 1 PC



The screenshot shows the 'IP Configuration' window for the 'FastEthernet0' interface. The 'Static' radio button is selected, indicating a static IP configuration. The fields are filled with the following values:

Field	Value
IPv4 Address	192.168.1.2
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	192.168.1.3

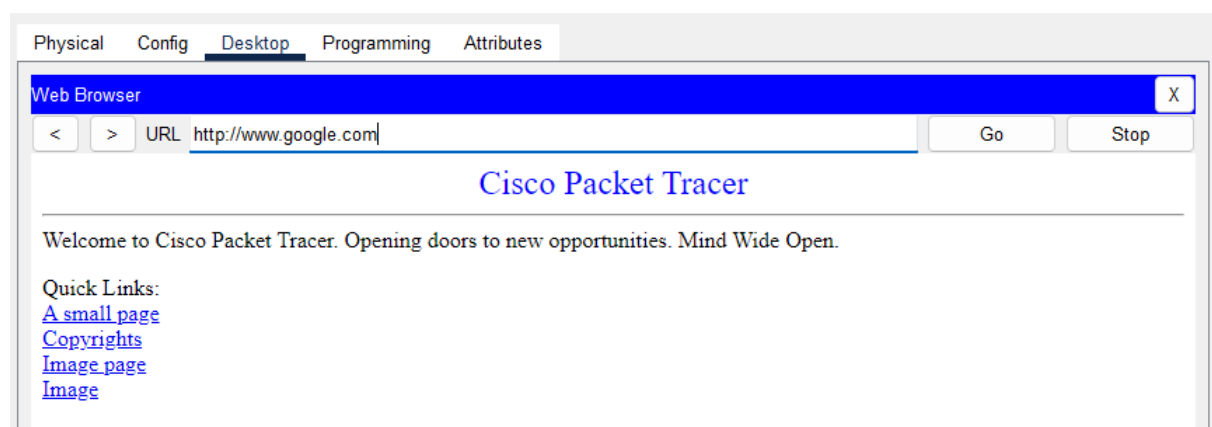
Screenshot of DNS settings



The screenshot shows the 'Services' tab in the configuration window. The 'DNS' service is enabled (radio button is selected). The 'Resource Records' section shows a table of configured records:

No.	Name	Type	Detail
0	www.google.com	A Record	192.168.2.2
1	www.google.com	A Record	192.168.2.3

Screenshot of access to Web server



The screenshot shows a 'Web Browser' window with the URL 'http://www.google.com' entered in the address bar. The page content displays the 'Cisco Packet Tracer' logo and a welcome message: 'Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.' Below this, there are 'Quick Links' to various pages:

- [A small page](#)
- [Copyrights](#)
- [Image page](#)
- [Image](#)

Screenshot of DHCP settings

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 192.168.3.1

DNS Server: 0.0.0.0

Start IP Address: 192 168 3 2

Subnet Mask: 255 255 255 0

Maximum Number of Users: 5

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192.168.3.1	0.0.0.0	192.168.3.2	255.255.255.0	5	0.0.0.0	0.0.0.0

Screenshot of DHCP IP address for any 1 PC

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface: FastEthernet0

IP Configuration

☒ DHCP ☐ Static

IPv4 Address: 192.168.3.4

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.3.1

DNS Server: 0.0.0.0

Screenshot of running-config file with VTY

```
Router(config-if)#exit
Router(config)#line vty 0 4
Router(config-line)#login local
Router(config-line)#user keba password 123
Router(config)#exit
Router#
show running-config | section vty
```

Screenshot of successful ping from 1 PC to any 1 remote host.

Screenshot of successful TELNET access (from CMD)

```
C:\>telnet 192.168.1.1
Trying 192.168.1.1 ...Open

User Access Verification

Username: keba
Password:
Router>
Router>enable
```

Screenshot of Routing Table of router

```
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

    192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.1.0/24 is directly connected, GigabitEthernet0/0
L       192.168.1.1/32 is directly connected, GigabitEthernet0/0

Router#
```

Screenshot of successful ping from 1 PC to any 1 remote host.

```
Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=18ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 18ms, Average = 4ms
```

RESULT:

The required configuration of DNS and investigate the working of DNS and HTTP with the help of above mentioned steps and method.