

|                          |   |                            |
|--------------------------|---|----------------------------|
| <b>EX.NO :04</b>         | <b>Investigation of LAN – HTTP, DNS, DHCP, TELNET</b> | <b>REG.NO: URK22AI1004</b> |
| <b>DATE:16 -08 -2023</b> |   |                            |

## 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](http://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

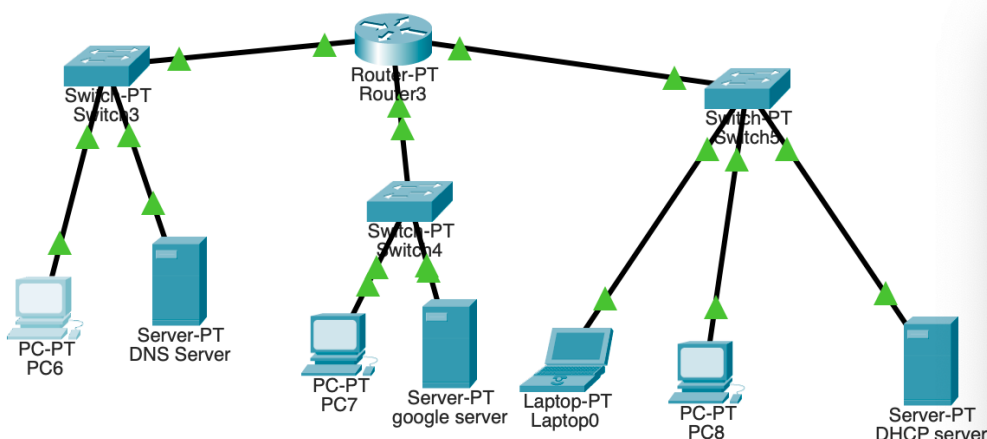
## PROCEDURE (TELNET)

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



User Profile

Name: Princy L

E-Mail: princy.l@karunya.edu

Additional Info:  
URK22A11004

OK

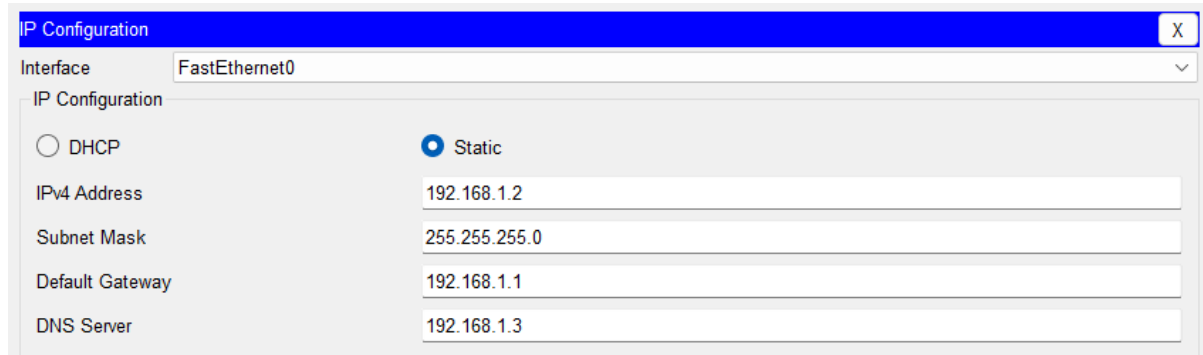
Cancel

## 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   | vti       | 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 | vti       | 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



IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

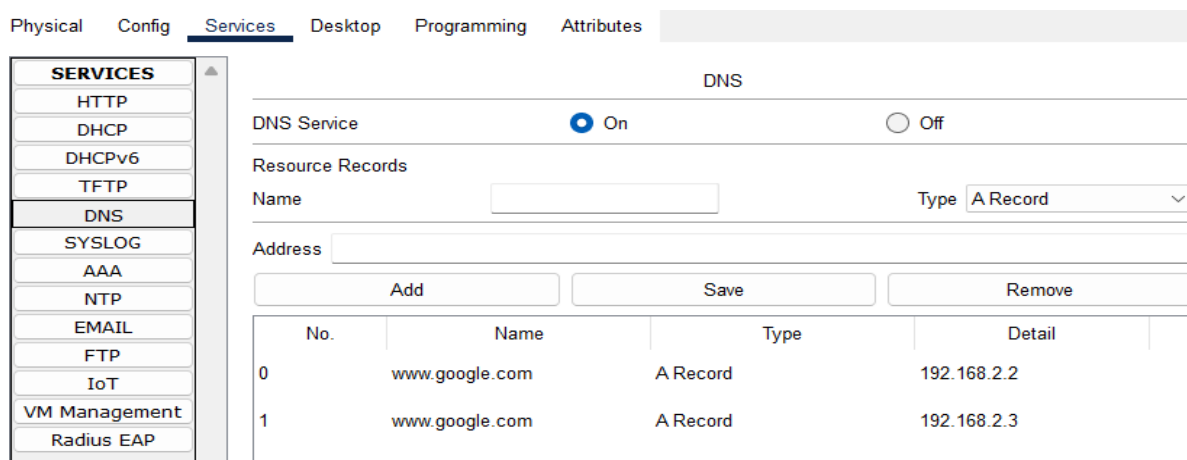
IPv4 Address: 192.168.1.2

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

DNS Server: 192.168.1.3

### Screenshot of DNS settings



Physical Config **Services** Desktop Programming Attributes

**SERVICES**

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

DNS

DNS Service ☒ On ☐ Off

Resource Records

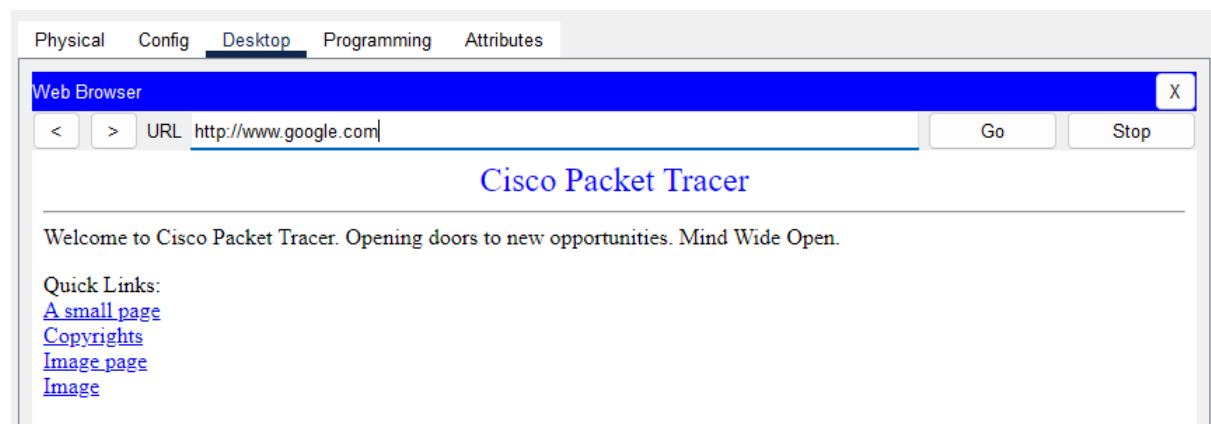
Name:  Type: A Record

Address:

Add Save Remove

| 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



Physical Config **Desktop** Programming Attributes

Web Browser

< > URL: http://www.google.com/ Go Stop

Cisco Packet Tracer

Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.

Quick Links:

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

**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

Username:Princy
Password:
Router>
```

**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.