

Experiment No : 05
Experiment Name : DNS server configuration

Objective:

In this experiment we're going to simulate and evaluate the networking principle of DNS server. A DNS server is any computer registered to join the Domain Name System. A DNS server runs special-purpose networking software, features a public IP address, and contains a database of network names and addresses for other Internet hosts. We'll be using two DNS servers for two virtual websites and test the working principle

Design procedure:

- Here a simple network connection using Routers, Switches and DNS servers:

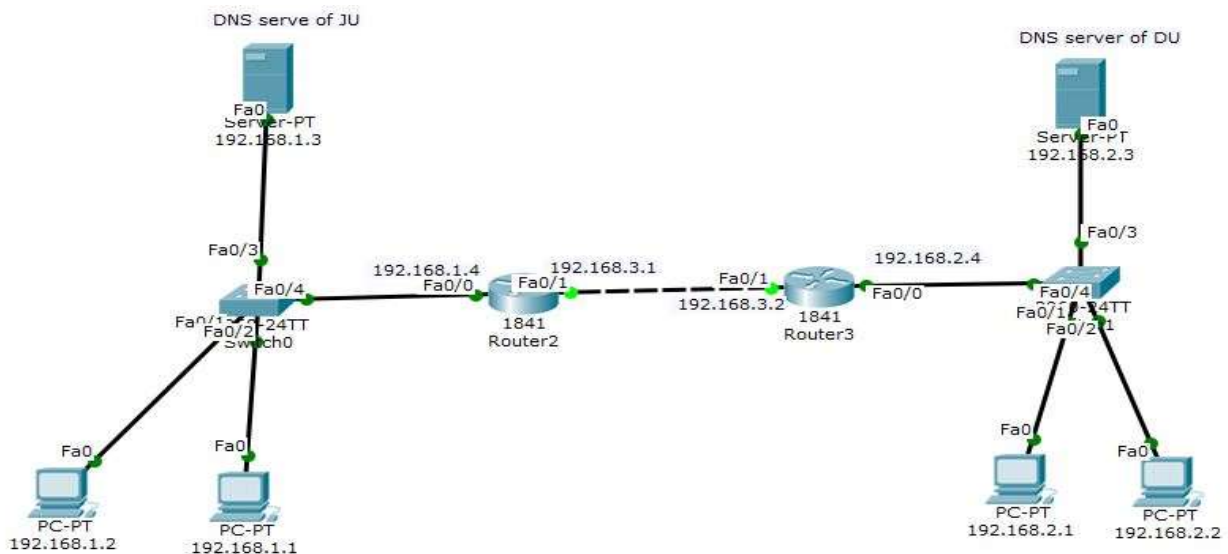
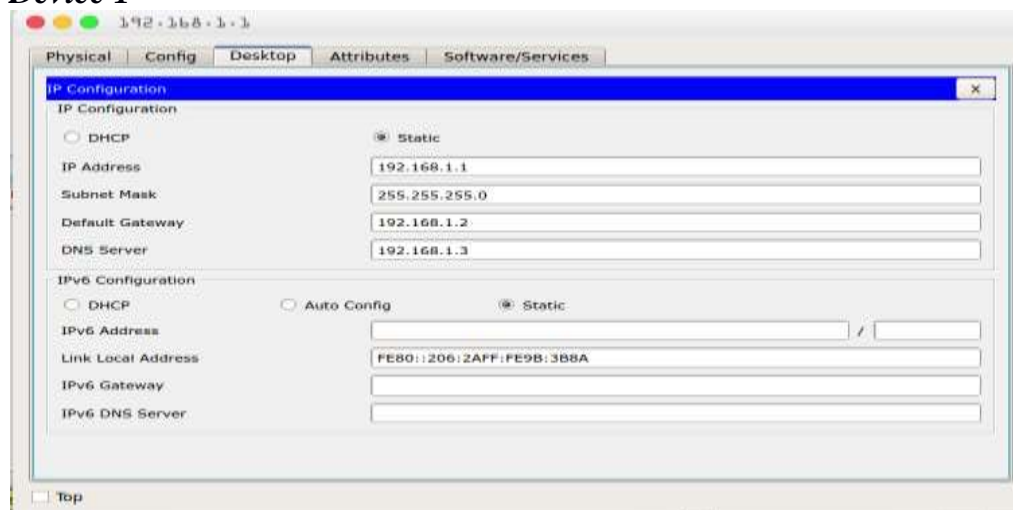


Illustration 1: DNS server connected to switch, connected via two routers.

The above figure shows the connection among PCs, switches, routers & DNS servers.

- **Details procedure of router, End Device configuration:**
 - **End Device IP address configure:** These are sample configuration, not all end-device configuration has shown,
 - **Device 1**



- **Device 2**

192.168.2.1

Physical Config Desktop Attributes Software/Services

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address: 192.168.2.1

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.2.2

DNS Server: 192.168.2.3

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::201:63FF:FE95:9CCB

IPv6 Gateway:

IPv6 DNS Server:

☐ Top

- **2. Router configuration:** Each Router requires two step to be fully functional, first step we assign IP-addresses relative to each router. The second step we setup the routing table:

- **Router:0**

Router0

Physical Config CLI Attributes

GigabitEthernet0/0

Port Status: ☒ On

Bandwidth: ☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex: ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address: 0000.0CA9.AB01

IP Configuration

IP Address: 192.168.1.2

Subnet Mask: 255.255.255.0

Tx Ring Limit: 10

Equivalent IOS Commands

```
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
```

☐ Top

- **Router:1**

The screenshot shows the configuration window for Router1, specifically the GigabitEthernet0/0 interface. The left sidebar has tabs for Physical, Config, CLI, and Attributes. Under the Config tab, there is a tree view with categories: GLOBAL, Settings, Algorithm Settings, ROUTING, Static, RIP, SWITCHING, VLAN Database, and INTERFACE. Under the INTERFACE category, GigabitEthernet0/0 and GigabitEthernet0/1 are listed. The main area shows the configuration for GigabitEthernet0/0. The Port Status is checked and set to On. Bandwidth is set to 100 Mbps. Duplex is set to Full Duplex. MAC Address is 0002.4A78.2501. IP Configuration shows IP Address 192.168.2.2 and Subnet Mask 255.255.255.0. Tx Ring Limit is 10. Below the configuration fields is a section for Equivalent IOS Commands, which contains the following commands:

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
```

At the bottom left, there is a 'Top' button.

- **DNS server configuration: We need to configure both of the DNS servers as follows**
 - **DNS Server 1:**

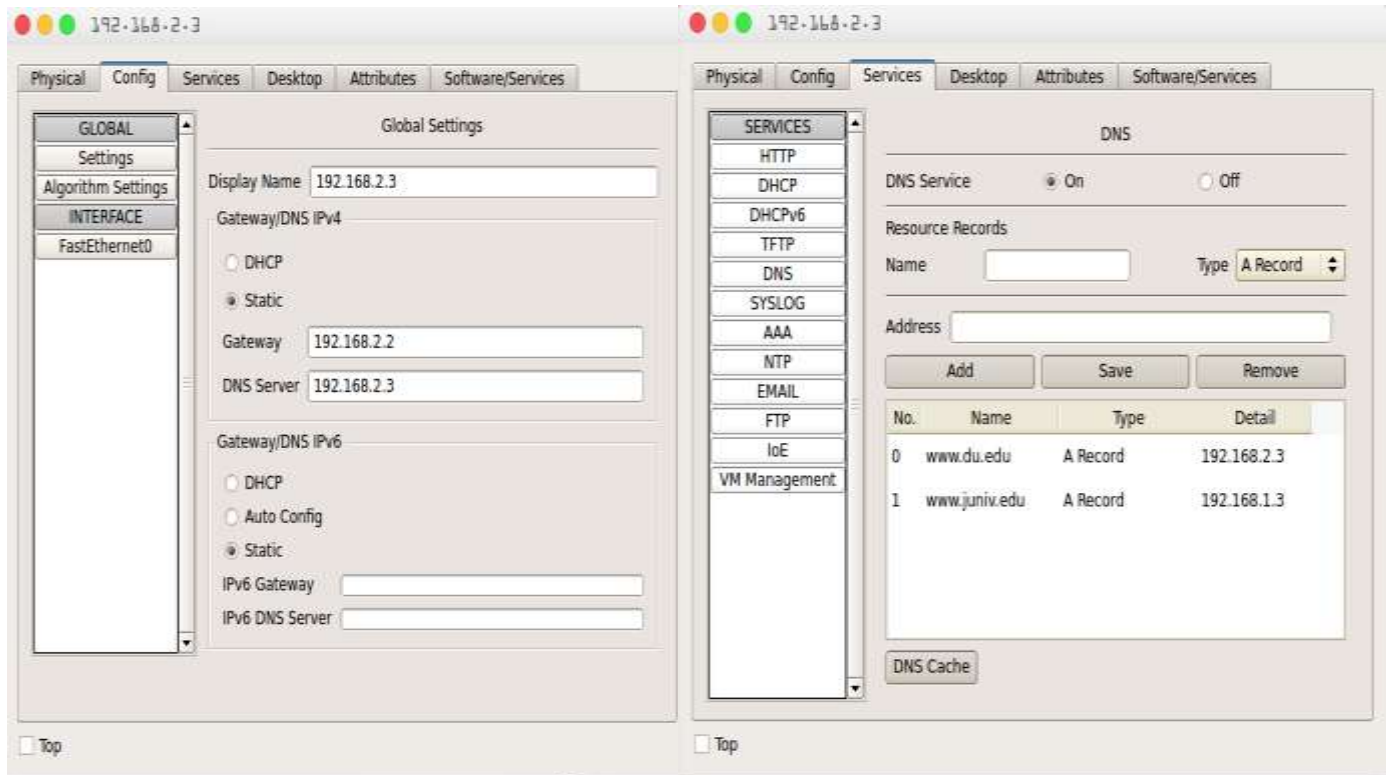
The screenshot shows the Global Settings configuration window for DNS. The left sidebar has tabs for Physical, Config, Services, Desktop, Attributes, and Software/Services. Under the Config tab, there is a tree view with categories: GLOBAL, Settings, Algorithm Settings, INTERFACE, and FastEthernet0. The main area shows the configuration for DNS. The Display Name is 192.168.1.3. Gateway/DNS IPv4 is set to Static with Gateway 192.168.1.2 and DNS Server 192.168.1.3. Gateway/DNS IPv6 is set to Static with IPv6 Gateway and IPv6 DNS Server fields.

The screenshot shows the DNS configuration window. The left sidebar has tabs for Physical, Config, Services, Desktop, Attributes, and Software/Services. Under the Services tab, there is a tree view with categories: SERVICES, HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoE, and VM Management. The main area shows the configuration for DNS. The DNS Service is checked and set to On. Resource Records are listed in a table:

No.	Name	Type	Detail
0	www.du.edu	A Record	192.168.2.3
1	www.juniv.edu	A Record	192.168.1.3

Below the table is a 'DNS Cache' button. At the bottom left, there is a 'Top' button.

○ **DNS Server 2:**



Testing DNS Record: Visiting one of the websites from any PC will make sure the DNS service

