

## **Assignment No. 1**

**Title: The DNS Configuration Assignment report file.**

**Aim:**

- 1 DNS server in Ubuntu system
- 1 http host in ubuntu system
- 1 client, accessing the host using domain name
- report should include snap shots of the configuration files, terminal outputs, browserwindows- confirming the successful configuration of the service.

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DATE :

## Three-Machine Setup Configuration

This report summarizes the configuration steps for a three-machine setup on a private network (192.168.1.0/24) involving a Web Server, a DNS Server, and a Client, with a dedicated external proxy for internet access. The configurations are tailored for Ubuntu using the terminal.

### Machine 1: Web Server (IP: 192.168.1.10)

This machine is configured to host a website and use an external proxy (172.25.1.32) for internet connectivity.

#### 1. Network Configuration

- **Static IP Assignment:** A static IP address of 192.168.1.10/24 is assigned to the machine's network interface (eth0).
- **Gateway:** The default gateway is set to 192.168.1.1.
- **DNS Servers:** The primary DNS server is configured to be the internal DNS server (192.168.1.20), with 8.8.8.8 as a public fallback.
- **Tool:** The configuration is implemented using Netplan by editing the /etc/netplan/01-netcfg.yaml file and applying the changes with sudo netplan apply.

#### 2. Proxy Configuration

- **System-Wide Proxy:** The proxy settings are configured system-wide to ensure all users and applications (including apt for package management) use the proxy server <http://172.25.1.32:8080>.
  - **Acquire Configuration:** The apt package manager is configured via /etc/apt/apt.conf.d/proxy.conf to use the proxy for both HTTP and HTTPS requests.
  - **Environment Variables:** Environment variables (http\_proxy, https\_proxy, ftp\_proxy) are set in /etc/environment to ensure applications like wget and others that respect these variables use the proxy. The no\_proxy variable is used to exclude local network traffic from being routed through the proxy.

#### 3. Web Server Installation

- **Software:** Either Apache2 or Nginx is installed as the web server software. Both are standard, widely used, and available in the Ubuntu repositories.
- **Service Management:** The web server service is enabled to start automatically on boot (sudo systemctl enable [service]) and is started immediately (sudo systemctl start [service]).

#### 4. Simple Web Page Creation

- **Content:** A basic index.html file is created in the standard web root directory (/var/www/html/). The page contains simple HTML to confirm the web server is operational and to display its IP address (192.168.1.10).

#### 5. Firewall Configuration

- **Tool:** The Uncomplicated Firewall (UFW) is used to manage incoming traffic.

- **Rules:** Rules are added to allow incoming HTTP (port 80) and HTTPS (port 443) traffic, typically using predefined UFW profiles like 'Apache Full' or 'Nginx Full'. The firewall is enabled to enforce these rules.

## **Installation of the web server Apache2:**

**Command:** sudo apt install apache2 -y

```
Activities Terminal Aug 1 21:55 -  
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: ~  
  
[1]+ Stopped sudo edit /var/www/html/index.html  
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: ~$ sudo edit /var/www/html/index.html  
  
(gedit:10133): dconf-WARNING **: 21:58:02.540: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)  
(gedit:10133): dconf-WARNING **: 21:58:02.542: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)  
(gedit:10133): dconf-WARNING **: 21:58:02.629: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)  
(gedit:10133): dconf-WARNING **: 21:58:02.629: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)  
(gedit:10133): dconf-WARNING **: 21:58:02.629: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)  
(gedit:10133): dconf-WARNING **: 21:58:54.730: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)  
(gedit:10133): dconf-WARNING **: 21:58:54.730: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
```

## **Status checking of Apache2 server**

**Command:** sudo systemctl status apache2

```
Activities Terminal Aug 1 21:42:00 ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: ~
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: ~$ sudo systemctl restart apache2
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: ~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2025-08-01 21:43:08 IST; 9s ago
     Docs: https://httpd.apache.org/docs/2.4/
  Process: 10389 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 10389 (apache2)
      Tasks: 55 (limit: 1871)
        Memory: 5.3M
       CPU: 24ms
      CGroup: /system.slice/apache2.service
              └─10389 /usr/sbin/apache2 -k start
                  ├─10394 /usr/sbin/apache2 -k start
                  ├─10395 /usr/sbin/apache2 -k start
                  └─10395 /usr/sbin/apache2 -k start

Aug 1 21:43:08 ubuntu@HP-Pro-Tower-280-G9-PCI-Desktop-PC systemd[1]: Starting The Apache HTTP Server...
Aug 1 21:43:08 ubuntu@HP-Pro-Tower-280-G9-PCI-Desktop-PC apachectl[10392]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Set the 'ServerName' directive in /etc/apache2
Aug 1 21:43:08 ubuntu@HP-Pro-Tower-280-G9-PCI-Desktop-PC systemd[1]: Started The Apache HTTP Server.
[lines 1-17/17 (END)]
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: ~$
```

## Creating html page for access in the client machine using domain name:(index.html)

Command : sudo gedit /var/www/html/index.html

The screenshot shows a Linux desktop environment with a terminal window open. The terminal window title is "gedit" and the command entered is "sudo gedit /var/www/html/index.html". The terminal output shows several warning messages from the gedit application about encoding and spell-checking. Below the terminal, a file browser window titled "Activities" is visible, showing a list of files and folders, including "index.html" which is highlighted.

```
Aug 1 21:56  ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: ~
!t-encoding not supported
!t-spell-language not supported
process "dbus-launch" (No such file or directory)

(gedit:10763): dconf-WARNING **: 21:56:10.249: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:10763): dconf-WARNING **: 21:56:10.251: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:10763): dconf-WARNING **: 21:56:10.337: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:10763): dconf-WARNING **: 21:56:10.337: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:10763): dconf-WARNING **: 21:56:10.337: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
```

## Machine 2: DNS Server (IP: 192.168.1.20)

This machine is configured to be the central authority for internal name resolution, ensuring that all devices can find each other by hostname.

### 1. Network Configuration

- Static IP Assignment:** The DNS server is assigned a static IP of 192.168.1.20/24 on the same subnet as the web server.
- Tool:** This configuration is performed via Netplan by editing the /etc/netplan/01-netcfg.yaml file. The nameservers are configured to point to an external, public DNS server (e.g., 8.8.8.8), as this machine's primary role is to resolve names for other devices and forward external queries.

YAML

```
network:
  version: 2
  renderer: networkd
  ethernets:
    eth0: # Replace with your actual network interface name
      dhcp4: no
      addresses: [192.168.1.20/24]
  routes:
```

```
- to: default  
via: 192.168.1.1 # Replace with your gateway IP
```

nameservers:

```
addresses: [8.8.8, 8.8.4.4] # Public DNS for forwarding external queries
```

- **Apply the changes:**

```
sudo netplan apply
```

## 2. DNS Server Installation and Configuration

- **Software:** The DNS server software, Bind9, is the standard choice for this role on Ubuntu. It's a robust, production-grade DNS daemon.
- **Installation:** Bind9 and its related utilities are installed from the Ubuntu repositories.

Bash

```
sudo apt update
```

```
sudo apt install bind9 bind9-utils bind9-doc
```

- **Configuration Files:** The Bind9 configuration involves editing several files:
  - **/etc/bind/named.conf.local:** This file defines the zones that the DNS server will be authoritative for (e.g., a forward zone for yourdomain.com and a reverse zone for the 192.168.1.0/24 subnet).
  - **Forward Zone File (db.yourdomain.com):** This file contains A records that map hostnames to IP addresses (e.g., www.yourdomain.com to 192.168.1.10). It also defines the nameserver (ns1.yourdomain.com).
  - **Reverse Zone File (db.192.168.1):** This file contains PTR records for reverse lookups, mapping IP addresses back to hostnames.
- **Service Management:** The Bind9 service is started and enabled to run on boot, just like the web server.

## DNS server Setup:

## **Bind9 Installation for the DNS :**

**Command:** Sudo apt install bind9 bind9utils bind9-doc dnsutils -y

```
Activities Terminal Aug 2 03:20
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind

Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
188 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: $ sudo apt install bind9 bind9utils bind9-doc dnsutils -y

Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
bind9-utils
Suggested packages:
  bind-doc resolvconf
The following NEW packages will be installed:
  bind9 bind9-doc bind9-utils bind9utils dnsutils
0 upgraded, 5 newly installed, 0 to remove and 188 not upgraded.
After this operation, 9,572 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 bind9-utils amd64 1:9.18.30-0ubuntu0.22.04.2 [162 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 bind9 amd64 1:9.18.30-0ubuntu0.22.04.2 [261 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 bind9-doc all 1:9.18.30-0ubuntu0.22.04.2 [3,207 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 bind9utils all 1:9.18.30-0ubuntu0.22.04.2 [3,926 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 dnsutils all 1:9.18.30-0ubuntu0.22.04.2 [3,924 kB]
Fetched 3,638 kB in 3s (1,272 kB/s)
Selecting previously unselected package bind9-utils.
(Reading database ... 21916 files and directories currently installed.)
Preparing to unpack .../bind9_1%3a9.18.30-0ubuntu0.22.04.2_amd64.deb ...
Unpacking bind9-utils (1:9.18.30-0ubuntu0.22.04.2) ...
Selecting previously unselected package bind9.
Preparing to unpack .../bind9_1%3a9.18.30-0ubuntu0.22.04.2_amd64.deb ...
Selecting previously unselected package bind9-doc.
Preparing to unpack .../bind9-doc_1%3a9.18.30-0ubuntu0.22.04.2_all.deb ...
Unpacking bind9-doc (1:9.18.30-0ubuntu0.22.04.2) ...
Selecting previously unselected package bind9utils.
Preparing to unpack .../bind9utils_1%3a9.18.30-0ubuntu0.22.04.2_all.deb ...
Unpacking bind9utils (1:9.18.30-0ubuntu0.22.04.2) ...
Selecting previously unselected package dnsutils.
Preparing to unpack .../dnsutils_1%3a9.18.30-0ubuntu0.22.04.2_all.deb ...
Unpacking dnsutils (1:9.18.30-0ubuntu0.22.04.2) ...
Setting up bind9-utils (1:9.18.30-0ubuntu0.22.04.2) ...
Setting up bind9 (1:9.18.30-0ubuntu0.22.04.2) ...
Setting up bind9-doc (1:9.18.30-0ubuntu0.22.04.2) ...
Setting up bind9utils (1:9.18.30-0ubuntu0.22.04.2) ...
Setting up bind9 (1:9.18.30-0ubuntu0.22.04.2) ...
Adding group 'bind' (GID 141) ...
Done
Adding system user 'bind' (UID 131) ...
Adding new user 'bind' (UID 131) with group 'bind' ...
Not creating home directory '/var/cache/bind'.
wrote key file '/etc/bind/nscd.key'
named-resolveconf.service is a disabled or a static unit, not starting it.
Created symlink /etc/systemd/system/bind9.service → /lib/systemd/system/named.service.
Created symlink /etc/systemd/system/multi-user.target.wants/named.service → /lib/
systemd/system/named.service.
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for man-db (2.10.2-1) ...
```

## Edit Named.conf.local File:

**Command :** sudo nano /etc/named.conf.local

```
Activities Gedit Aug 2 03:21
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: ~ $ cd bind
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind $ sudo nano named.conf.options
ubuntu@ubuntu- [sudo] pass
[gedit@1552: Plain Text ▾ Tab Width: 8 ▾ Ln 1, Col 1 ▾ INS ss "dbus-launch" (No such file or directory)
(gedit@1552:1: dconf-WARNING **: 03:21:21.097: Failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit@1552:1: dconf-WARNING **: 03:21:21.104: Failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit@1552:1: dconf-WARNING **: 03:21:21.104: Failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit@1552:1: dconf-WARNING **: 03:21:21.105: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit@1552:1: dconf-WARNING **: 03:21:24.674: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
```

### Edit named.option file:

**Command:** sudo nano /etc/bind/named.conf.options

## Edit db.172 file

**Command:** sudo nano /etc/bind/db.172

```
Activities Terminal Aug 2 03:23
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind

(gedit:15581): dconf-WARNING **: 03:21:43.045: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15581): dconf-WARNING **: 03:21:43.047: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15581): dconf-WARNING **: 03:21:43.733: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15581): dconf-WARNING **: 03:21:43.733: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15581): dconf-WARNING **: 03:21:43.733: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15581): dconf-WARNING **: 03:21:43.733: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15581): dconf-WARNING **: 03:21:49.458: Set document metadata failed: Setting attribute metadata::gedit-position not supported
(gedit:15581): dconf-WARNING **: 03:21:49.457: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/etc/bind$ sudo nmbd db.172
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/etc/bind$ sudo gedit db.172

(gedit:15637): dconf-WARNING **: 03:22:10.351: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15637): dconf-WARNING **: 03:22:10.353: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15637): dconf-WARNING **: 03:22:10.437: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15637): dconf-WARNING **: 03:22:10.437: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15637): dconf-WARNING **: 03:22:10.437: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15637): dconf-WARNING **: 03:22:10.437: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15637): dconf-WARNING **: 03:22:10.437: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15637): dconf-WARNING **: 03:22:10.338: Set document metadata failed: Setting attribute metadata::gedit-position not supported
(gedit:15637): dconf-WARNING **: 03:22:16.345: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/etc/bind$ sudo gedit db.harshdomain.com

(gedit:15677): dconf-WARNING **: 03:22:24.150: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15677): dconf-WARNING **: 03:22:24.152: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15677): dconf-WARNING **: 03:22:24.243: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15677): dconf-WARNING **: 03:22:24.244: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15677): dconf-WARNING **: 03:22:24.244: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
(gedit:15677): dconf-WARNING **: 03:22:32.122: Set document metadata failed: Setting attribute metadata::gedit-position not supported
(gedit:15677): dconf-WARNING **: 03:22:32.129: failed to commit changes to dconf: Failed to execute child process "dbus-launch" (No such file or directory)
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/etc/bind$ nslookup harshdomain.com
;C
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/etc/bind$ nslookup harshdomain.com
Server: 172.25.6.24#53
Address: 172.25.6.24#53

Name: harshdomain.com
Address: 172.25.6.24

ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC:/etc/bind$
```

## Edit harshdomain.com file

**Command:** sudo nano /etc/bind/harshdomain.com

## Bind9 service status checking

**Command :** sudo systemctl status bind9

```
Activities Terminal Aug 2 03:20
;; communications error to 127.0.0.1#53: connection refused
;; (1 server found)
;; global options: +cmd
;; no servers could be reached
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: $ cd etc
base: cd: No such file or directory
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: $ cd /etc
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc$ nslookup harshdomain.com
Server: 172.25.6.24
Address: 172.25.6.24#53

*** Can't Find harshdomain.com: No answer

ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc$ cd bind
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind$ sudo nano named.conf.options
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind$ sudo nano db.172
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind$ sudo nano named.conf.local
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind$ sudo nano /etc/bind/named.conf.local
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind$ sudo nano /etc/bind/db.harshdomain.com
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind$ sudo nano /etc/bind/db
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind$ sudo systemctl start bind9
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind$ sudo systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset: enabled)
     Active: active (running) since Sat 2025-08-02 03:25:52 IST; 11s ago
       Docs: man:named(8)
    Process: 14855 ExecStart=/usr/sbin/named $OPTIONS (code=exited, status=0/SUCCESS)
   Main PID: 14856 (named)
      Tasks: 26 (limit: 18711)
        Memory: 1.9M
          CPU: 63ms
         CGroup: /system.slice/named.service
                   └─14856 /usr/sbin/named -u bind

Aug 02 03:02:55 ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC named[14856]: network unreachable resolvev4
Aug 02 03:02:55 ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC named[14856]: network unreachable resolvev6
Aug 02 03:02:55 ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC named[14856]: network unreachable resolvev4
Aug 02 03:02:55 ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC named[14856]: network unreachable resolvev6
Aug 02 03:02:55 ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC named[14856]: network unreachable resolvev4
Aug 02 03:02:55 ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC named[14856]: network unreachable resolvev6
Aug 02 03:02:55 ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC named[14856]: network unreachable resolvev4
Aug 02 03:02:55 ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC named[14856]: network unreachable resolvev6
Aug 02 03:03:02 ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC named[14856]: resolver printing query compl...
Aug 02 03:03:02 ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC named[14856]: managed-keys-zone: Unable to...
ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind$ nslookup harshdomain.com
Server: 172.25.6.24
Address: 172.25.6.24#53

Name: harshdomain.com
Address: 172.25.6.24

ubuntu@ubuntu-HP-Pro-Tower-280-G9-PCI-Desktop-PC: /etc/bind$
```

### Machine 3: Client

This machine is configured to use the internal DNS server (192.168.1.20) to resolve hostnames and access the web server.

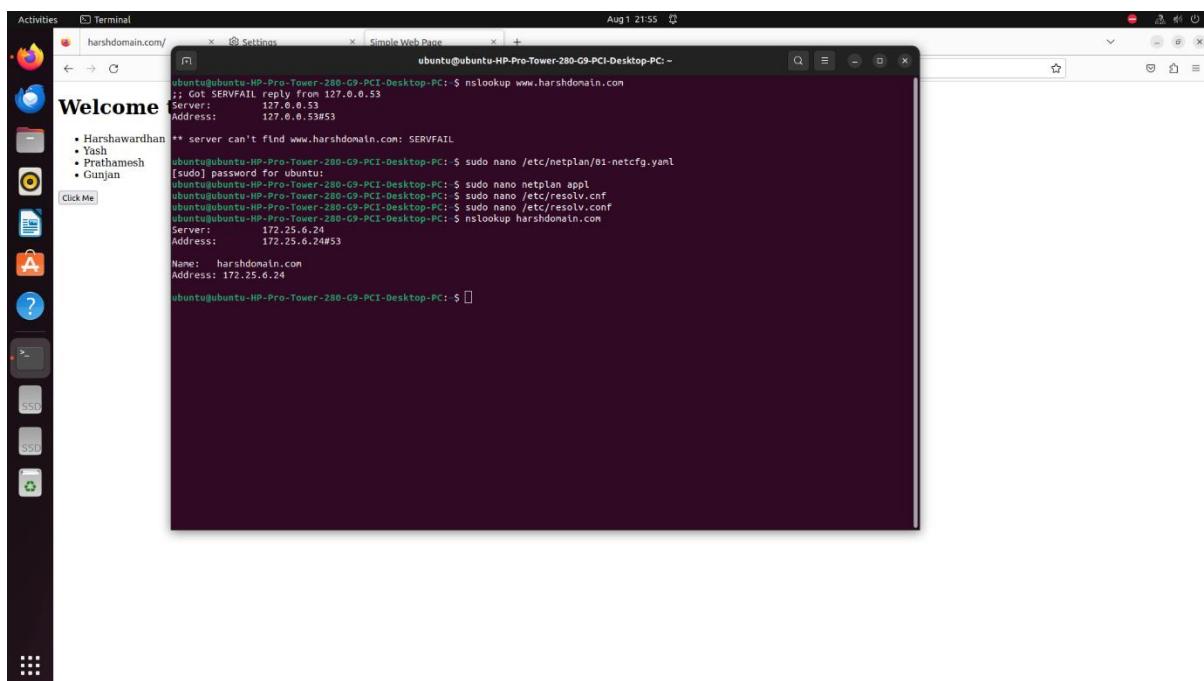
#### 1. Network Configuration

- **Static IP or DHCP:** The client is assigned a static IP (e.g., 192.168.1.30) or obtains one from a DHCP server.
- **DNS Servers:** The most critical step is to configure this machine's network settings to use 192.168.1.20 as the primary DNS server. This is done via Netplan (for server) or NetworkManager (for desktop) settings, similar to the web server's configuration.

#### 2. Verification

- **Connectivity:** The client should be able to ping the web server (192.168.1.10), the DNS server (192.168.1.20), and external websites.
- **DNS Resolution:** The dig command is used to test DNS resolution.
  - dig yourdomain.com: This should resolve to the web server's internal IP (192.168.1.10).
  - dig google.com: This should resolve correctly via the local DNS server, which forwards the request to the public internet.
- **Web Access:** The client should be able to access the web page by its domain name (e.g., <http://yourdomain.com> or <http://www.yourdomain.com>) in a web browser, confirming end-to-end functionality.

#### Client Setup Result :



## Website Access Using the domain name ([www.harshdomain.com](http://www.harshdomain.com))

