

```
sabry@sabry-vm:~/task1$ cat /etc/resolv.conf
```

```
nameserver 127.0.0.53
options edns0 trust-ad
search localdomain
```

-First thing I wanted to know which DNS server I use to see the resolving Domain names into IP address

```
sabry@sabry-vm:~/task1$ dig internal.example.com

; <<>> DiG 9.18.30-0ubuntu0.24.04.2-Ubuntu <<>> internal.example.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 15867
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;internal.example.com.      IN      A

;; AUTHORITY SECTION:
example.com.                5       IN      SOA     ns.icann.org. noc.dns.icann.org.
2025011626 7200 3600 1209600 3600

;; Query time: 11 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Mon Apr 28 21:46:44 EEST 2025
;; MSG SIZE rcvd: 105
```

I tried to ask my DNS about this website and the answer was:

- in status : (NXDOMAIN)->internal.example.com does not exist **MAYBE IT'S INSIDE A COMPANY (PRIVATE DOMAIN)**

```

sabry@sabry-vm:~/task1$ dig @8.8.8.8 internal.example.com

; <<>> DiG 9.18.30-0ubuntu0.24.04.2-Ubuntu <<>> @8.8.8.8 internal.example.com
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NXDOMAIN, id: 21200
;; flags: qr rd ra ad; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; QUESTION SECTION:
;internal.example.com.      IN      A

;; AUTHORITY SECTION:
example.com.      248     IN      SOA     ns.icann.org. noc.dns.icann.org.
2025011626 7200 3600 1209600 3600

;; Query time: 50 msec
;; SERVER: 8.8.8.8#53(8.8.8.8) (UDP)
;; WHEN: Mon Apr 28 21:50:19 EEST 2025
;; MSG SIZE rcvd: 105

```

I tried to ask GOOGLE DNS about this website and the answer was the same Answer

```

sabry@sabry-vm:~/Desktop$ ping internal.example.com
ping: internal.example.com: Name or service not known

```

```

sabry@sabry-vm:~/Desktop$ nc -zv internal.example.com 80
nc -zv internal.example.com 443
nc: getaddrinfo for host "internal.example.com" port 80: Name or service not known
nc: getaddrinfo for host "internal.example.com" port 443: Name or service not known
sabry@sabry-vm:~/Desktop$

```

```
nc: getaddrinfo for host internal.example.com port 443: Name or service not known
sabry@sabry-vm:~/Desktop$ curl -I http://internal.example.com
curl: (6) Could not resolve host: internal.example.com
sabry@sabry-vm:~/Desktop$ curl -I https://internal.example.com
curl: (6) Could not resolve host: internal.example.com
```

```
sabry@sabry-vm:~/task1$ telnet internal.example.com 80
Server lookup failure: internal.example.com:80, Name or service not known
sabry@sabry-vm:~/task1$ telnet internal.example.com 443
Server lookup failure: internal.example.com:443, Name or service not known
sabry@sabry-vm:~/task1$
```

I tried to test port 80 and port 443 but the service is not even started to be reachable or listening only on local host

My Possible Casses

Layer	Problem
DNS	Wrong record, DNS server down, wrong resolver
Routing	Wrong routes, subnet misconfig, no gateway
Firewall	iptables/firewalld blocking
Service	Web server (Apache, Nginx) down or misconfigured
Host file	/etc/hosts override

```
sabry@sabry-vm:~/Desktop$ echo "10.1.2.3 internal.example.com" | sudo tee -a /etc/hosts
10.1.2.3 internal.example.com
```

```
sabry@sabry-vm:~/Desktop$ dig internal.example.com

; <<>> DiG 9.18.30-0ubuntu0.24.04.2-Ubuntu <<>> internal.example.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 13921
;; flags: qr aa rd ra ad; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags;; udp: 65494
;; QUESTION SECTION:
;internal.example.com.          IN      A

;; ANSWER SECTION:
internal.example.com.  0      IN      A      10.1.2.3

;; Query time: 0 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Mon Apr 28 23:04:45 EEST 2025
;; MSG SIZE rcvd: 65
```

```
sabry@sabry-vm:~/Desktop$ sudo systemctl status apache2
* apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: failed (Result: exit-code) since Mon 2025-04-28 23:07:53 EEST; 46s ago
     Docs: https://httpd.apache.org/docs/2.4/
  Process: 13960 ExecStart=/usr/sbin/apachectl start (code=exited, status=1/FAILURE)
    CPU: 54ms

Apr 28 23:07:53 sabry-vm systemd[1]: Starting apache2.service - The Apache HTTP Server...
Apr 28 23:07:53 sabry-vm apachectl[13962]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, please see the documentation at http://httpd.apache.org/docs/2.4/ for how to tune the httpd.conf parameter to match your system's configuration
Apr 28 23:07:53 sabry-vm apachectl[13962]: (98)Address already in use: AH00072: make_sock: could not bind to address 0.0.0.0:80
Apr 28 23:07:53 sabry-vm apachectl[13962]: (98)Address already in use: AH00072: make_sock: could not bind to address ::::80
Apr 28 23:07:53 sabry-vm apachectl[13962]: no listening sockets available, shutting down
Apr 28 23:07:53 sabry-vm apachectl[13962]: AH00015: Unable to open logs
Apr 28 23:07:53 sabry-vm systemd[1]: apache2.service: Control process exited, code=exited, status=1/FAILURE
Apr 28 23:07:53 sabry-vm systemd[1]: apache2.service: Failed with result 'exit-code'.
Apr 28 23:07:53 sabry-vm systemd[1]: Failed to start apache2.service - The Apache HTTP Server.
lines 1-16/16 (END)
```

```
sabry@sabry-vm:~/Desktop$ sudo systemctl start apache2
sudo systemctl enable apache2
Job for apache2.service failed because the control process exited with error code.
See "systemctl status apache2.service" and "journalctl -xeu apache2.service" for details.
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
sabry@sabry-vm:~/Desktop$
```

```
sabry@sabry-vm:~/Desktop$
sabry@sabry-vm:~/Desktop$ ss -tulnp | grep ':80\|:443'
tcp    LISTEN 0      4096      0.0.0.0:80      0.0.0.0:*
tcp    LISTEN 0      4096      0.0.0.0:443     0.0.0.0:*
sabry@sabry-vm:~/Desktop$ sudo ufw allow 80/tcp
sudo ufw allow 443/tcp
Rules updated
Rules updated (v6)
Rules updated
Rules updated (v6)
```