

# **LAPORAN KONFIGURASI DNS DAN WEB SERVER PADA UBUNTU SERVER**



Disusun oleh :  
Nama : Zulham Syaiful Adnan  
No : 35  
Kelas : XI TJKT2

## **TEKNIK JARINGAN KOMPUTER DAN TELEKOMUNIKASI**

**SMK NEGERI 2 PENGASIH TAHUN**

**AJARAN 2024/2025**

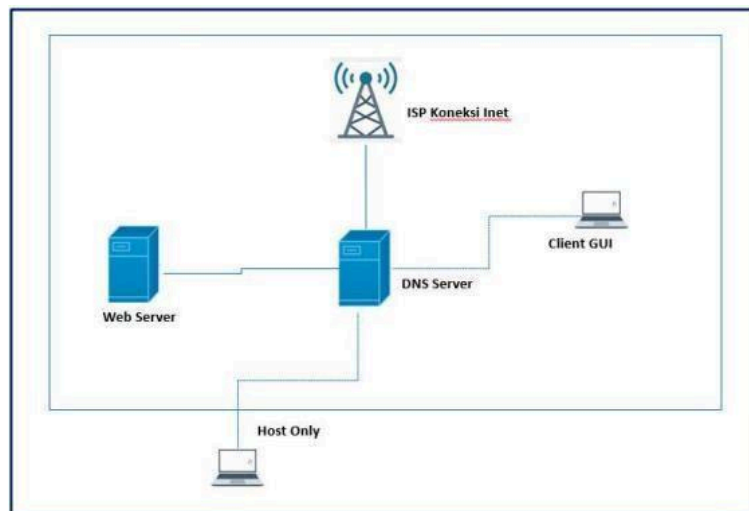
## A. TUJUAN

1. Siswa dapat memahami cara menginstall dan mengkonfigurasi DNS
2. Siswa memperoleh pengalaman langsung dalam menerapkan layanan jaringan berbasis DNS dan Web server di lingkungan virtual.
3. Siswa dapat memahami cara mengkonfigurasi web server

## B. ALAT DAN BAHAN

1. Vmware
2. Ubuntu 22 iso
3. Sinyal internet
4. Laptop/PC

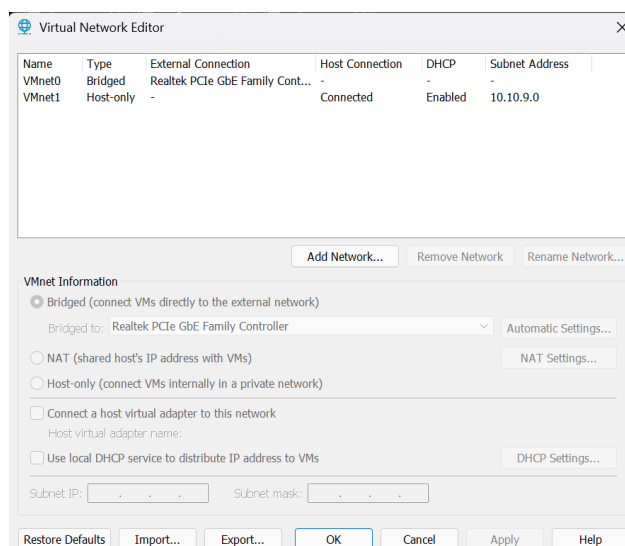
## C. TOPOLOGI JARINGAN



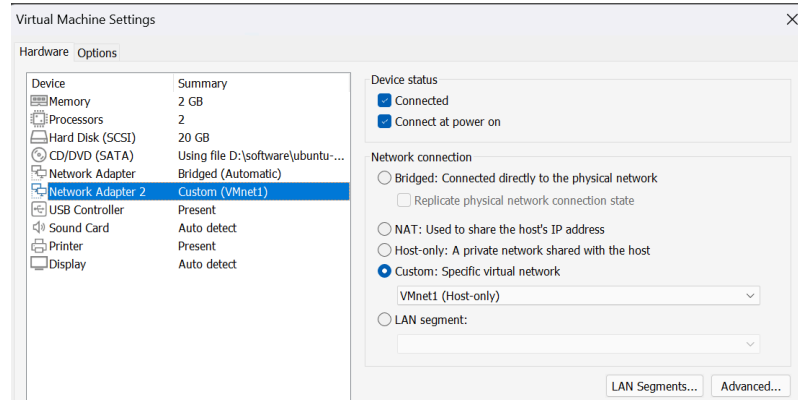
## D. LANGKAH LANGKAH

### INSTALL DAN KONFIGURASI DNS

1. Hubungkan terlebih dahulu vmware dengan internet yang ada dengan virtual network editor, Add network buat VM 1 lalu ubah menjadi host-only (dapat terhubung dengan laptop utama)



2. Pada Virtual Machine klik kanan lalu klik settings > Add > Network Adapter > dan ubah menjadi custom atur Vmnet1(host-only) tadi



3. Masuk ke DNS server settings ip dengan #nano  
/etc/netplan/50-cloud-init.yaml ubah ip seperti berikut save dengan #netplan  
apply

```
# This file is generated from information provided by the datasource. Changes
# to it will not persist across an instance reboot. To disable cloud-init's
# network configuration capabilities, write a file
# /etc/cloud/cloud.cfg.d/99-disable-network-config.cfg with the following:
# network: {config: disabled}
network:
  ethernets:
    ens33:
      dhcp4: true
    ens37:
      dhcp4: false
      addresses:
        - 10.10.9.9/24
  version: 2
```

4. #ip a (untuk cek ip yang disetting tadi) Pastikan bisa ping 8.8.8.8

```
root@server01:~# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:d8:11:54 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.0.109/24 metric 100 brd 192.168.0.255 scope global dynamic ens33
        valid_lft 86399sec preferred_lft 86399sec
    inet6 fe80::20c:29ff:fed8:1154/64 scope link
        valid_lft forever preferred_lft forever
3: ens37: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:d8:11:5e brd ff:ff:ff:ff:ff:ff
    altname enp2s5
    inet 10.10.9.9/24 brd 10.10.9.255 scope global ens37
        valid_lft forever preferred_lft forever
    inet6 fe80::20c:29ff:fed8:115e/64 scope link
        valid_lft forever preferred_lft forever
root@server01:~# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=118 time=30.0 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=118 time=28.5 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=118 time=29.0 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=118 time=28.1 ms
^C
--- 8.8.8.8 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3008ms
rtt min/avg/max/mdev = 28.133/28.913/30.021/0.702 ms
root@server01:~#
```

5. Lalu ketik `#apt update` setelah itu `#apt install bind9 -y`

```
root@server01:~# apt update
Hit:1 http://id.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://id.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:3 http://id.archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:4 http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [2,591 kB]
Get:5 http://id.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [419 kB]
Get:6 http://id.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [3,568 kB]
Get:7 http://id.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [636 kB]
Get:8 http://id.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1,208 kB]
Get:9 http://id.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [298 kB]
Get:10 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [2,346 kB]
Get:12 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [355 kB]
Get:13 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [3,448 kB]
Get:14 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [617 kB]
Get:15 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [974 kB]
Get:16 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [210 kB]
Fetched 17.1 MB in 40s (425 kB/s)
```

```
root@server01:~# apt install bind9 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
bind9 is already the newest version (1:9.18.30-0ubuntu0.22.04.2).
0 upgraded, 0 newly installed, 0 to remove and 54 not upgraded.
root@server01:~# _
```

6. `#systemctl status bind9` (untuk memastikan dns server sudah aktif)

```
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
54 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@server01:~#
root@server01:~#
root@server01:~# apt install bind9 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
bind9 is already the newest version (1:9.18.30-0ubuntu0.22.04.2).
0 upgraded, 0 newly installed, 0 to remove and 54 not upgraded.
root@server01:~# systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2025-05-21 09:27:55 UTC; 3h 4min ago
     Docs: man:named(8)
    Main PID: 951 (named)
      Tasks: 8 (limit: 2181)
     Memory: 11.8M
        CPU: 7.679s
    CGroup: /system.slice/named.service
            └─951 /usr/sbin/named -u bind

May 21 12:26:54 server01 named[951]: network unreachable resolving '201604-ipv4mte.gr.global.aa-rt.0
May 21 12:26:54 server01 named[951]: network unreachable resolving '201604-ipv4mte.gr.global.aa-rt.0
May 21 12:26:54 server01 named[951]: network unreachable resolving '201604-ipv4mte.gr.global.aa-rt.0
May 21 12:26:55 server01 named[951]: network unreachable resolving '201604-ipv4mte.gr.global.aa-rt.0
May 21 12:26:55 server01 named[951]: network unreachable resolving '201604-ipv4mte.gr.global.aa-rt.0
May 21 12:26:55 server01 named[951]: network unreachable resolving '201604-ipv4mte.gr.global.aa-rt.0
May 21 12:26:55 server01 named[951]: network unreachable resolving '201604-ipv4mte.gr.global.aa-rt.0
May 21 12:28:19 server01 named[951]: timed out resolving 's.360safe.com/A/IN': 1.1.1.1#53
May 21 12:30:49 server01 named[951]: timed out resolving 'akadns.net/DS/IN': 1.1.1.1#53
May 21 12:31:58 server01 named[951]: timed out resolving 'signaler-pa.clients6.google.com/A/IN': 1.1.1.1#53
lines 1-21/21 (END)
```

7. Masuk ke `#cd /etc/bind`

```
root@server01:~# cd /etc/bind
root@server01:/etc/bind#
```

8. Lalu masuk di `bind# nano named.conf.options` (isikan ip seperti berikut)

```
GNU nano 6.2                                named.conf.options *
options {
    directory "/var/cache/bind";

    // If there is a firewall between you and nameservers you want
    // to talk to, you may need to fix the firewall to allow multiple
    // ports to talk.  See http://www.kb.cert.org/vuls/id/800113

    // If your ISP provided one or more IP addresses for stable
    // nameservers, you probably want to use them as forwarders.
    // Uncomment the following block, and insert the addresses replacing
    // the all-0's placeholder.

    forwarders {
        1.1.1.1;
        8.8.8.8;
    };

    //=====
    // If BIND logs error messages about the root key being expired,
    // you will need to update your keys.  See https://www.isc.org/bind-keys
    //=====
    dnssec-validation auto;

    listen-on-v6 { any; };
};
```

9. #cp db.127 db.10 dan #cp db.local db.kelompok9

```
root@server01:/etc/bind# cp db.127 db.10
```

```
root@server01:/etc/bind# cp db.local db.kelompok9
```

10. #ls (Untuk memastikan db yang kita perbarui diatas sudah tersimpan)

```
root@server01:/etc/bind# ls
bind.keys  db.127    db.kelompok9  named.conf.default-zones  rndc.key
db.0       db.255    db.local       named.conf.local          zones.rfc1918
db.10      db.empty  named.conf     named.conf.options
```

11. bind#vim db.10 lalu edit seperti berikut :

```
;
$TTL      604800
@         IN      SOA      kelompok9.sch.id. root.kelompok9.sch.id. (
                                1          ; Serial
                                604800      ; Refresh
                                86400       ; Retry
                                2419200     ; Expire
                                604800 )    ; Negative Cache TTL
;
@         IN      NS       kelompok9.sch.id.
9         IN      PTR      kelompok9.sch.id.
19        IN      PTR      www.kelompok9.sch.id.
19        IN      PTR      mail.kelompok9.sch.id.
~
```

12. bind#nano db.kelompok9 lalu edit seperti berikut  
: (Untuk IP 10.10.9.19 adalah IP Web server)

```
;
; BIND data file for local loopback interface
;
$TTL      604800
@         IN      SOA      kelompok9.sch.id. root.kelompok9.sch.id. (
                                2          ; Serial
                                604800      ; Refresh
                                86400       ; Retry
                                2419200     ; Expire
                                604800 )    ; Negative Cache TTL
;
@         IN      NS       kelompok9.sch.id.
@         IN      A        10.10.9.9
www       IN      A        10.10.9.19
mail      IN      A        10.10.9.19
~
```

### 13. bind#nano named.conf.local

(Edit atau ubah zone... seperti berikut agar dns server dapat terhubung dengan pengaturan db yang kita buat tadi)

```
GNU nano 6.2 named.conf.local
//
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

zone "kelompok9.sch.id" {
    type master;
    file "/etc/bind/db.kelompok9";
};

zone "10.10.10.in-addr.arpa" {
    type master;
    file "/etc/bind/db.10";
};
```

### 14. cek apakah ada kesalahan dengan #named-checkzone db.kelompok9

db.10 #named-checkzone 9.10.10.in-addr.arpa db.10

(jika semua sudah Ok) save konfigurasi dengan #systemctl restart bind

```
root@server01:/etc/bind# named-checkzone db.kelompok9 db.10
zone db.kelompok9/IN: loaded serial 1
OK
root@server01:/etc/bind# named-checkzone 9.10.10.in-addr.arpa db.10
zone 9.10.10.in-addr.arpa/IN: loaded serial 1
OK
root@server01:/etc/bind#
```

### 15. lalu kita #apt install resolvconf (untuk mesettings nameserver)

setelah install buka ke #nano /etc/resolvconf/resolv.conf.d/head

```
root@server01:/etc/bind# apt install resolvconf
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
resolvconf is already the newest version (1.84ubuntu1).
0 upgraded, 0 newly installed, 0 to remove and 54 not upgraded.
root@server01:/etc/bind#
```



16. ubah atau tambahkan nameserver ip seperti berikut

```
# Dynamic resolv.conf(5) file for glibc resolver(3) generated by resolvconf(8)
# DO NOT EDIT THIS FILE BY HAND -- YOUR CHANGES WILL BE OVERWRITTEN
# 127.0.0.53 is the systemd-resolved stub resolver.
# run "systemd-resolve --status" to see details about the actual nameservers.

nameserver 10.10.9.9
```

17. test dns dengan #nslookup

kelompok9.sch.id #nslookup 10.10.9.9

```
root@server01:/etc/bind# systemctl restart bind9
root@server01:/etc/bind# nslookup kelompok9.sch.id
Server:      10.10.9.9
Address:     10.10.9.9#53

Name:   kelompok9.sch.id
Address: 10.10.9.9

root@server01:/etc/bind# nslookup 10.10.9.9
9.9.10.10.in-addr.arpa name = kelompok9.sch.id.
9.9.10.10.in-addr.arpa name = www.kelompok9.sch.id.
9.9.10.10.in-addr.arpa name = mail.kelompok9.sch.id.

root@server01:/etc/bind# _
```

Jika hasilnya seperti diatas (IP tujuan sudah sesuai) maka DNS kita sudah berhasil

## Konfigurasi Web server

1. Masuk ke Web server settings ip dengan #nano /etc/netplan/50-cloud-init.yaml ubah ip menjadi 10.10.9.19 save dengan #netplan apply

```
# This file is generated from information provided by the datasource. Changes
# to it will not persist across an instance reboot. To disable cloud-init's
# network configuration capabilities, write a file
# /etc/cloud/cloud.cfg.d/99-disable-network-config.cfg with the following:
# network: {config: disabled}
network:
  ethernets:
    ens33:
      dhcp4: false
      addresses: [10.10.9.19/24]
      routes:
        - to: default
          via: 10.10.9.9
      nameservers:
        addresses: [10.10.9.9, 10.10.9.19]
  version: 2
```

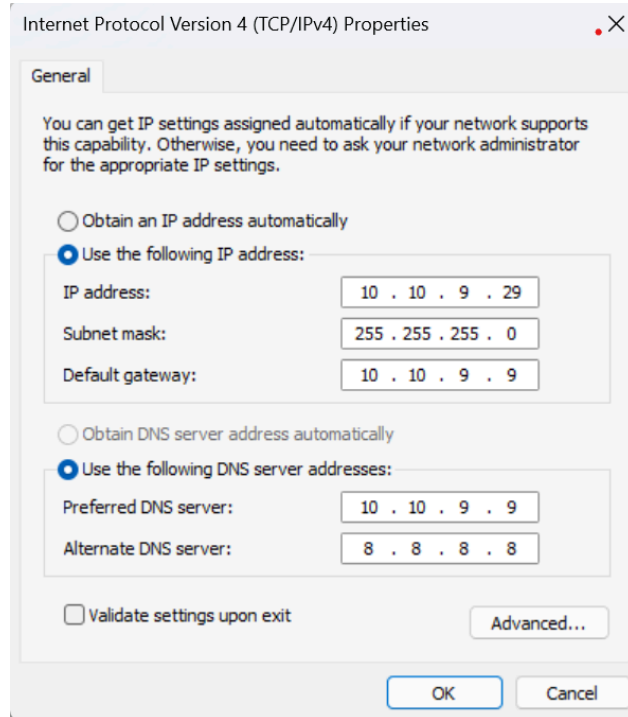
2. Setelah itu pastikan ip sudah terganti seperti di bawah ini

```
root@server01:/etc/bind# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:88:9f:55 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 10.10.9.19/24 brd 10.10.9.255 scope global ens33
        valid_lft forever preferred_lft forever
    inet 10.10.9.128/24 metric 100 brd 10.10.9.255 scope global secondary dynamic ens33
        valid_lft 1239sec preferred_lft 1239sec
    inet6 fe80::20c:29ff:fe88:9f55/64 scope link
        valid_lft forever preferred_lft forever
root@server01:/etc/bind# _
```

## Setting ip dan tes ping client gui dan os laptop

1. Buka control panel settings IP seperti berikut

(Berfungsi agar laptop dapat terhubung dengan semua server tadi)



2. Lalu cobalah ping ke DNS (10.10.9.9) Web server (10.10.9.19) Client Gui Debian(10.10.9.29)

```
C:\Users\ACER>ping 10.10.9.9

Pinging 10.10.9.9 with 32 bytes of data:
Reply from 10.10.9.9: bytes=32 time=3ms TTL=64
Reply from 10.10.9.9: bytes=32 time=3ms TTL=64
Reply from 10.10.9.9: bytes=32 time=2ms TTL=64
Reply from 10.10.9.9: bytes=32 time=1ms TTL=64
```

```
C:\Users\ACER>ping 10.10.9.19

Pinging 10.10.9.19 with 32 bytes of data:
Reply from 10.10.9.19: bytes=32 time=10ms TTL=64
Reply from 10.10.9.19: bytes=32 time=3ms TTL=64
Reply from 10.10.9.19: bytes=32 time=1ms TTL=64
Reply from 10.10.9.19: bytes=32 time=2ms TTL=64
```

```
C:\Users\ACER>ping 10.10.9.29

Pinging 10.10.9.29 with 32 bytes of data:
Reply from 10.10.9.29: bytes=32 time<1ms TTL=64
Reply from 10.10.9.29: bytes=32 time<1ms TTL=64
Reply from 10.10.9.29: bytes=32 time<1ms TTL=64
```

3. Lalu masuk ke debian gui masuk ke network setting ip menjadi 10.10.9.24 dan isi DNS 10.10.9.9/10.10.9.19/8.8.8.8

The image shows a network configuration window titled "Wired". On the left is a sidebar with tabs: Details, Security, Identity, IPv4 (selected), IPv6, and Reset. The main area contains the following settings:

- Address:** 10.10.9.24
- Netmask:** 255.255.255.0
- Gateway:** 10.10.9.9

Below these fields is a "+" button. The **DNS** section is set to "Automatic" and has a toggle switch turned "ON". It lists three DNS servers:

- Server: 10.10.9.9
- Server: 10.10.9.19
- Server: 8.8.8.8

At the bottom right are "Cancel" and "Apply" buttons.

4. Lalu coba ping ke DNS (10.10.9.9 dan [www.kelompok9.sch.id](http://www.kelompok9.sch.id)) Web server (10.10.9.19)

```
hafiizh@debian:~$ ping 10.10.9.9
PING 10.10.9.9 (10.10.9.9) 56(84) bytes of data.
64 bytes from 10.10.9.9: icmp_seq=1 ttl=64 time=1.41 ms
64 bytes from 10.10.9.9: icmp_seq=2 ttl=64 time=2.35 ms
64 bytes from 10.10.9.9: icmp_seq=3 ttl=64 time=3.33 ms
64 bytes from 10.10.9.9: icmp_seq=4 ttl=64 time=3.04 ms
^C
10.10.9.9: 4 packets transmitted, 4 received, 0% packet loss, time 13.00ms
rtt min/avg/max/mdev = 1.41/2.53/3.33/0.46 ms

hafiizh@debian:~$ ping 10.10.9.19
PING 10.10.9.19 (10.10.9.19) 56(84) bytes of data.
64 bytes from 10.10.9.19: icmp_seq=1 ttl=64 time=1.27 ms
64 bytes from 10.10.9.19: icmp_seq=2 ttl=64 time=2.03 ms
64 bytes from 10.10.9.19: icmp_seq=3 ttl=64 time=4.80 ms
64 bytes from 10.10.9.19: icmp_seq=4 ttl=64 time=2.56 ms
^C
--- 10.10.9.19 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3006ms
rtt min/avg/max/mdev = 1.275/2.668/4.801/1.314 ms
hafiizh@debian:~$
```

```
hafiizh@debian:~$ ping www.kelompok9.sch.id
PING www.kelompok9.sch.id (10.10.9.19) 56(84) bytes of data.
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=1 ttl=64 time=1.26 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=2 ttl=64 time=1.81 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=3 ttl=64 time=1.67 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=4 ttl=64 time=2.29 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=5 ttl=64 time=1.53 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=6 ttl=64 time=1.63 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=7 ttl=64 time=2.61 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=8 ttl=64 time=1.54 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=9 ttl=64 time=1.29 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=10 ttl=64 time=1.74 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=11 ttl=64 time=1.49 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=12 ttl=64 time=2.41 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=13 ttl=64 time=2.59 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=14 ttl=64 time=1.91 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=15 ttl=64 time=2.22 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=16 ttl=64 time=1.76 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=17 ttl=64 time=1.64 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=18 ttl=64 time=1.41 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=19 ttl=64 time=1.31 ms
64 bytes from www.kelompok9.sch.id (10.10.9.19): icmp_seq=20 ttl=64 time=2.10 ms
^C
www.kelompok9.sch.id: 20 packets transmitted, 20 received, 0% packet loss, time 1000ms
rtt min/avg/max/mdev = 1.26/1.76/2.61/0.40 ms
```

## **E. KESIMPULAN**

Melalui praktikum ini, siswa telah berhasil memahami dan menerapkan proses instalasi serta konfigurasi DNS server dan Web server pada sistem operasi Ubuntu Server. Pengujian terhadap konektivitas jaringan menunjukkan bahwa DNS mampu menerjemahkan nama domain lokal ke alamat IP dengan baik, dan halaman web lokal dapat diakses melalui browser menggunakan domain yang telah disiapkan. Hasil ini menunjukkan bahwa integrasi layanan jaringan berjalan secara optimal. Praktikum ini juga memberikan wawasan praktis mengenai cara kerja sistem penamaan dalam jaringan (DNS) serta bagaimana web server dapat disiapkan untuk melayani konten secara lokal. Dengan pengalaman langsung ini, siswa menjadi lebih siap dalam mengelola jaringan di lingkungan sekolah maupun industri.