LAPORAN KONFIGURASI DNS DAN WEB SERVER PADA UBUNTU SERVER

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TEKNIK JARINGAN KOMPUTER DAN TELEKOMUNIKASI

SMK NEGERI 2 PENGASIH TAHUN

AJARAN 2024/2025

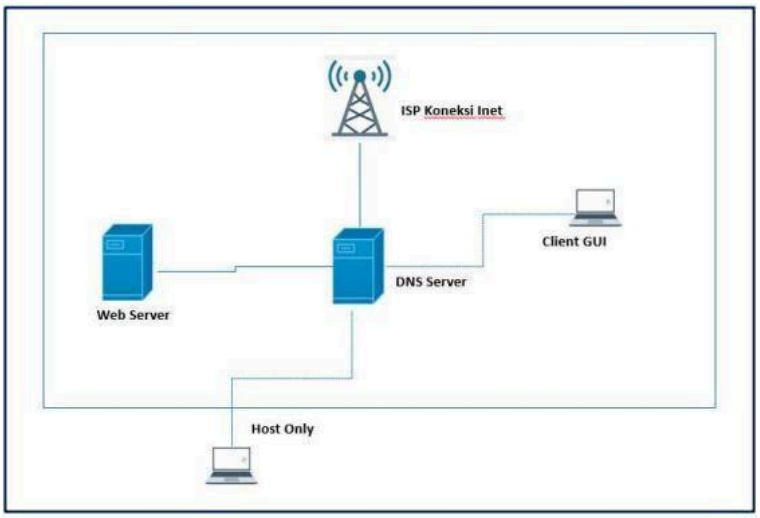
A. TUJUAN

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

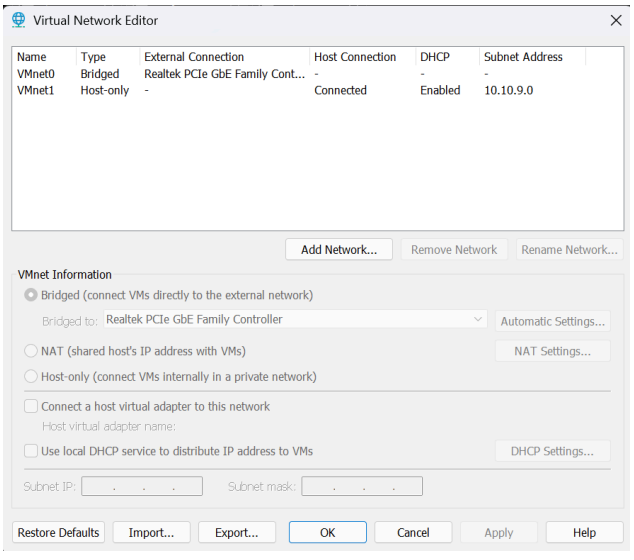
C. TOPOLOGI JARINGAN



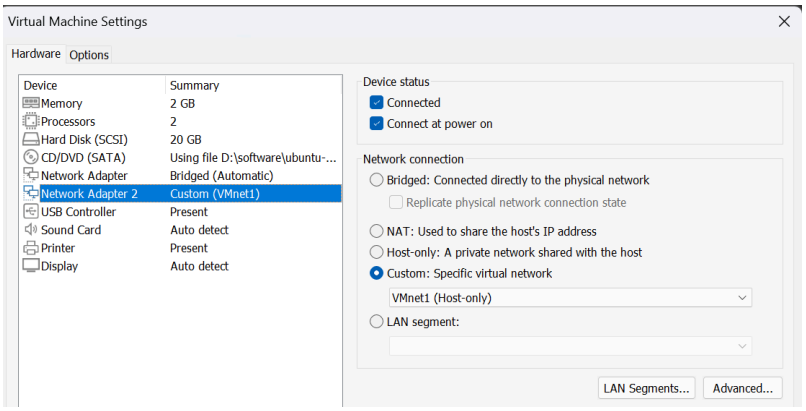
D. LANGKAH LANGKAH

INSTALL DAN KONFIGURASI DNS

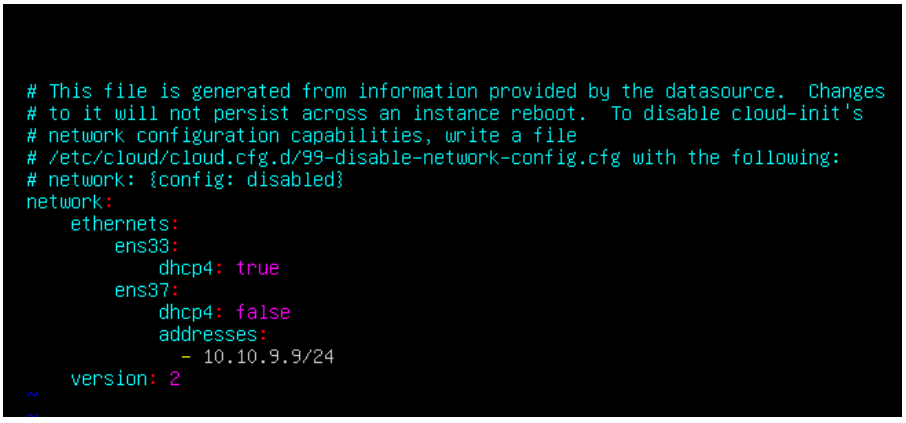
1. Hubungkan terlebih dahulu vmware dengan internet yang ada dengan virtual network editor, Add netwrok buat VM 1 lalu ubah menjadi host-only (dapat terhubung dengan laptop utama)



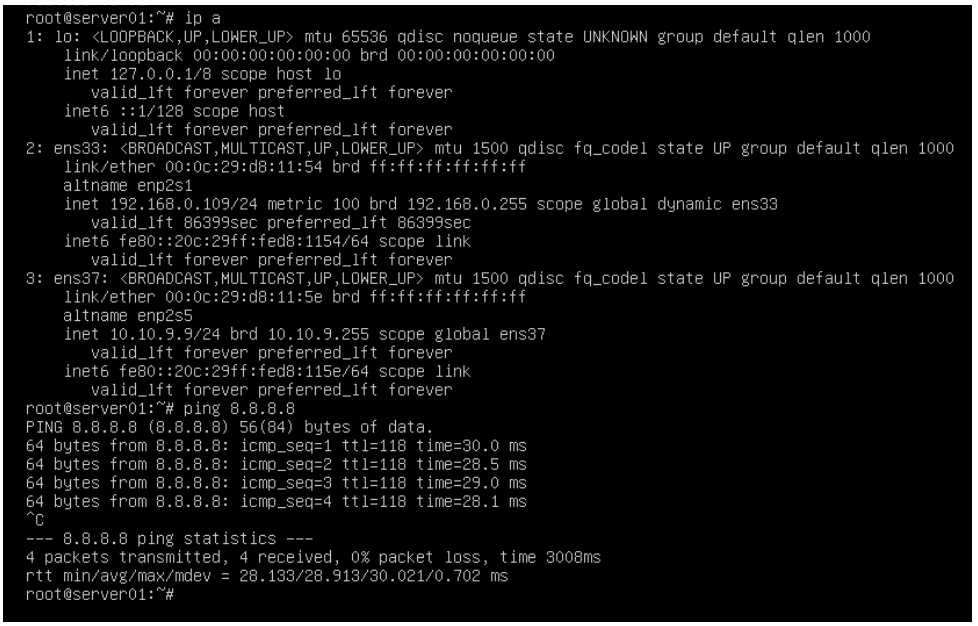
2. Pada Virtual Machine klik kanan lalu klik settings > Add > Network Adapter > dan ubah menjadi custom atur Vmnet1(host-only) tadi



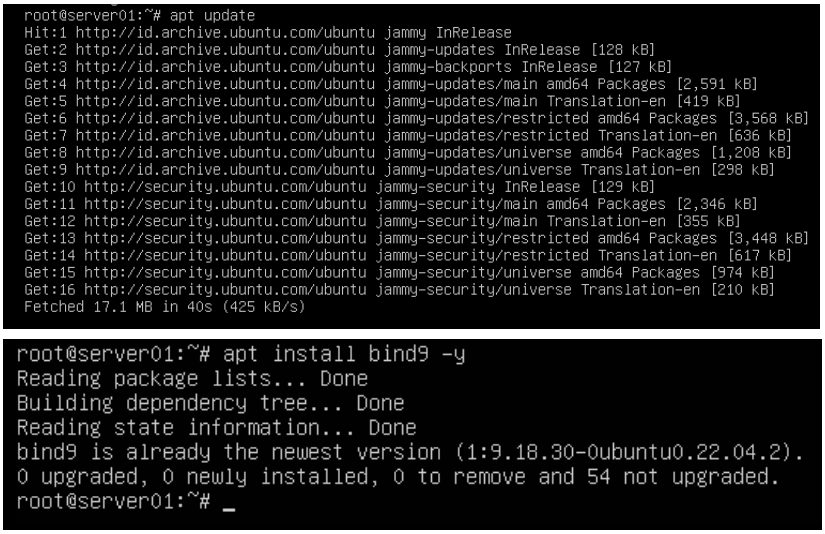
3. Masuk ke DNS server settings ip dengan #nano /etc/netplan/50-could-init.yaml ubah ip seperti berikut save dengan #netplan apply



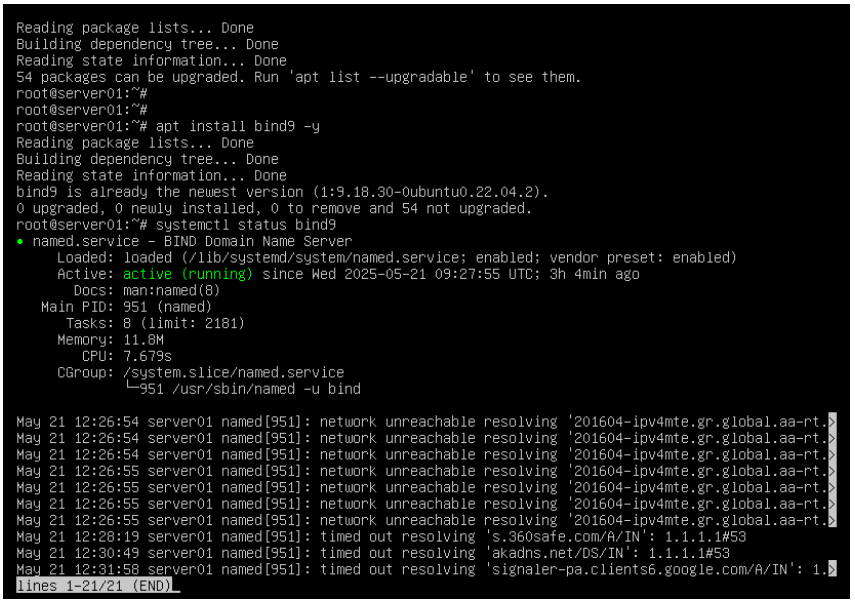
4. #ip a (untuk cek ip yang disetting tadi) Pastikan bisa ping 8.8.8.8


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:~#

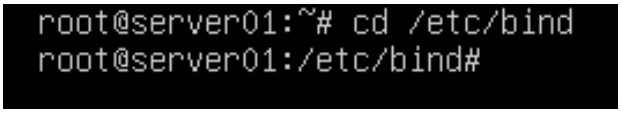
5. Lalu ketik #apt update setelah itu #apt install bind9 -y



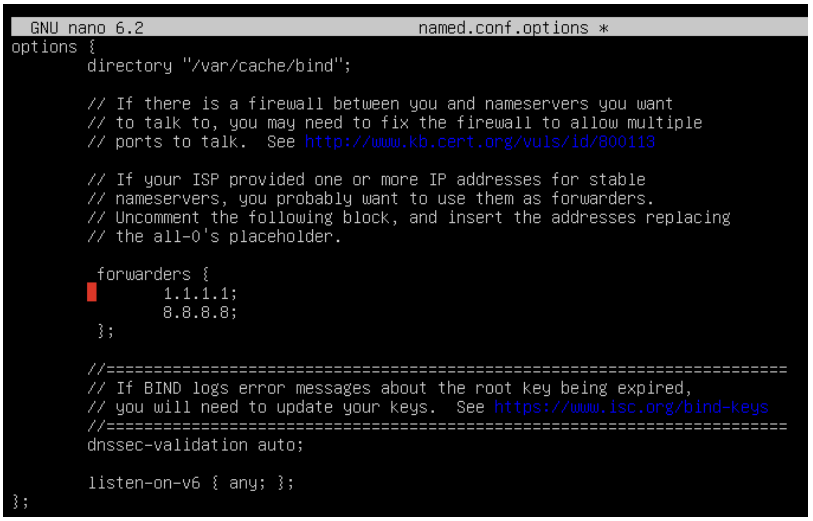
6. #systemctl status bind9 (untuk memastikan dns server sudah aktif)



7. Masuk ke#cd /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
root@server01:/etc/bind#
```

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

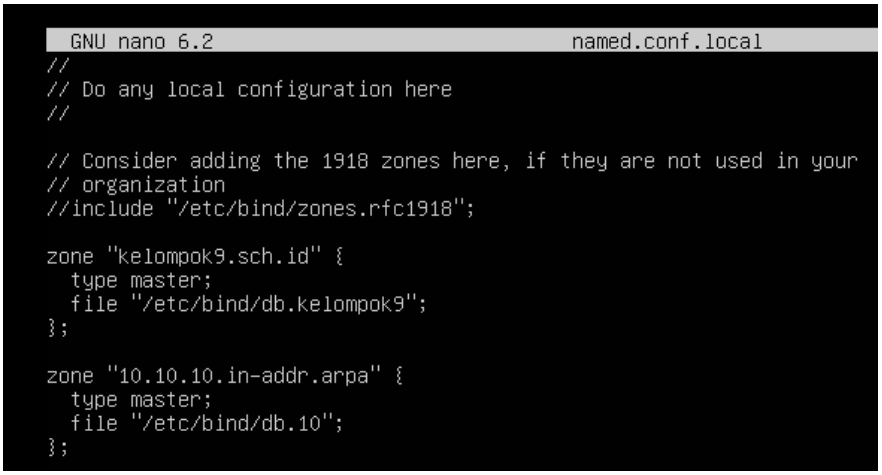
```
;
$TTL    604800
@       IN      SOA     kelompok9.sch.id. root.kelompok9.sch.id. (
                              1         ; Serial
                         604800         ; Refresh
                          86400         ; Retry
                        2419200         ; Expire
                         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
~
```

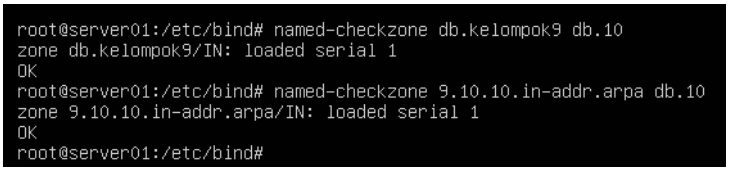
13. bind#nano named.conf.local

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



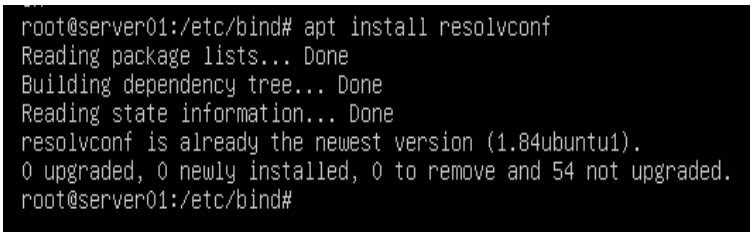
14. cek apakah ada kesalahan dengan #named-checkzone db.kelompok9 db.10 #named-checkzone 9.10.10.in addr-arpa db.10

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



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

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



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-could-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
```

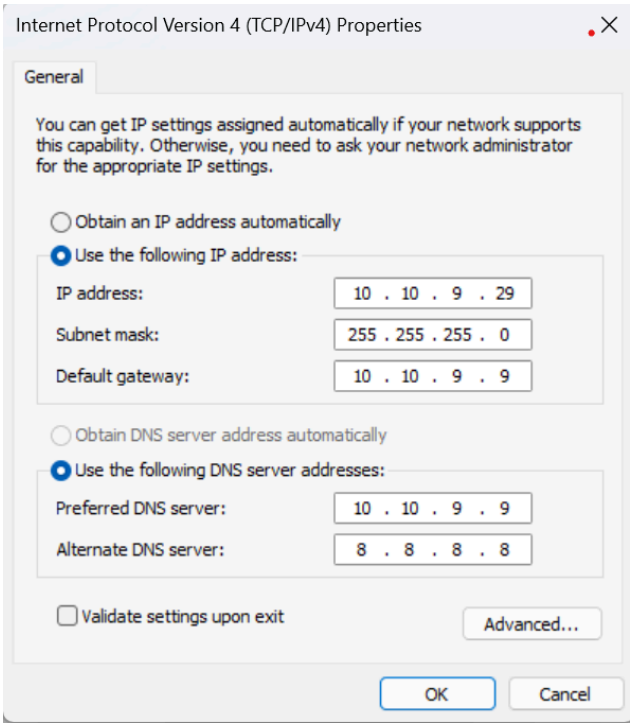
2. Setelah itu pastikan ip sudah terganti seperti di bawah ini

```
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
```

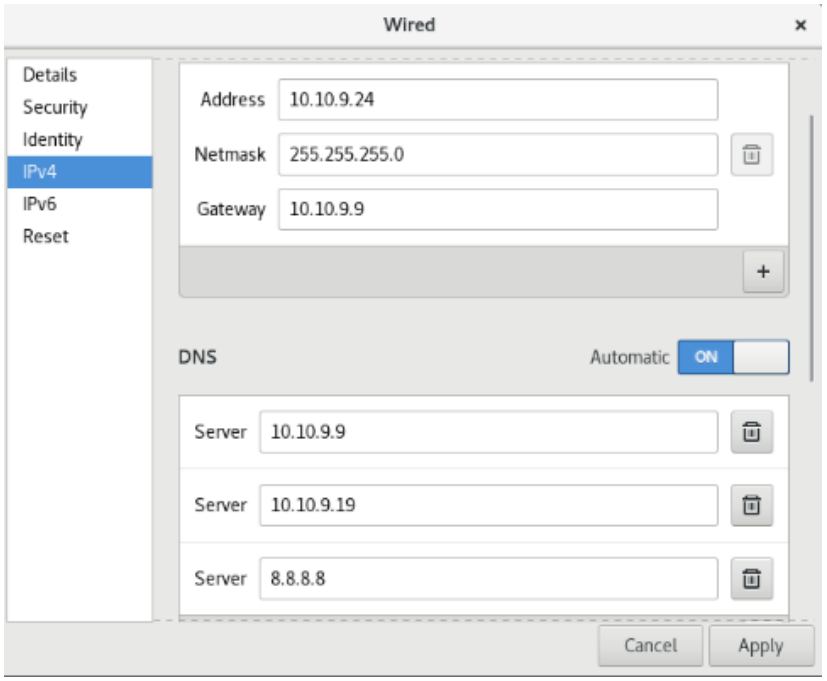
```
C:\Users\ACER>ping 10.10.9.19

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



4. Lalu coba ping ke DNS (10.10.9.9 dan 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
```

```
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
```

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.