

# **DOMAIN NAME SYSTEM**



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PALEMBANG  
2024**

Pada tugas Install dan Konfigurasi DNS Server kali ini saya menggunakan BIND, BIND adalah singkatan dari Berkeley Internet Name Domain adalah aplikasi DNS yang paling umum digunakan di internet, khususnya pada sistem operasi bertipe Unix. Dan sebagai contoh untuk nama domain yang saya gunakan adalah kelas.com dan akan saya terjemahkan ke alamat IP Server yaitu 192.168.10.30.

## 1. Intallasi DNS Server

Menjalankan perintah berikut untuk install bind9

```
root@ikhlash-VirtualBox: /home/ikhlash
root@ikhlash-VirtualBox:/home/ikhlash# apt install bind9
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
bind9 is already the newest version (1:9.18.18-0ubuntu0.22.04.2).
0 upgraded, 0 newly installed, 0 to remove and 265 not upgraded.
root@ikhlash-VirtualBox:/home/ikhlash#
```

Mengizinkan lalu lintas pada port 53 melalui firewall yang dikelola oleh ufw (Uncomplicated Firewall) di sistem Anda. Port 53 adalah port standar yang digunakan untuk layanan DNS (Domain Name System).

```
root@ikhlash-VirtualBox: /home/ikhlash
root@ikhlash-VirtualBox:/home/ikhlash# ufw allow 53
Rules updated
Rules updated (v6)
root@ikhlash-VirtualBox:/home/ikhlash#
```

## 2. Konfigurasi Network Interface

Mengkonfigurasi IP Address secara Static, Resolv.conf dan hosts seperti dibawah ini. Dengan perintah *nano /etc/netplan/00-installer-config.yaml*

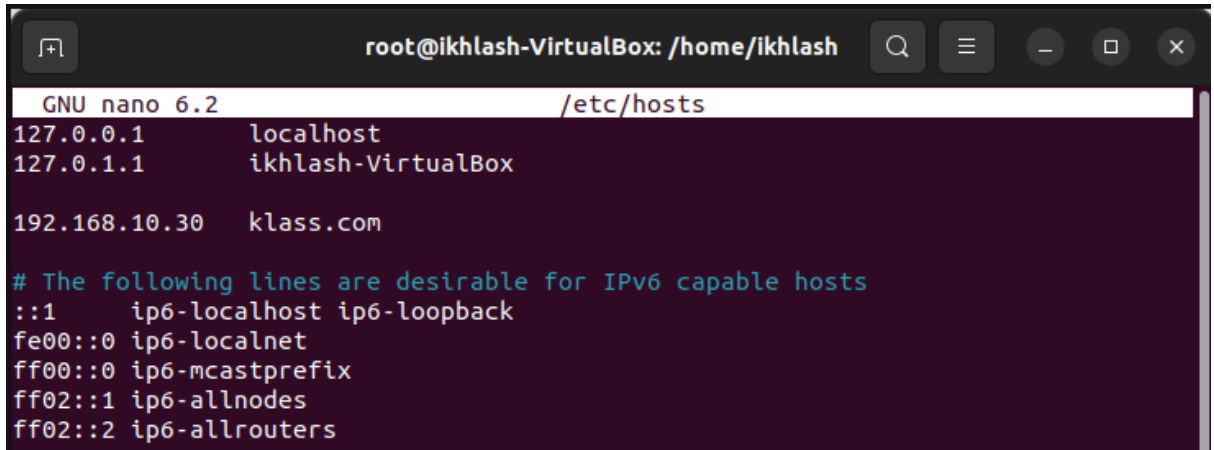
```
GNU nano 6.2 /etc/netplan/00-installer-config.yaml
# This is the network config written by 'subiquity'
network:
  ethernets:
    enp0s3:
      dhcp4: false
      addresses: [192.168.10.30/24]
      gateway4: 192.168.10.1
      nameservers:
        search: [aspal.com]
        addresses: [192.168.10.30, 192.168.10.1]
  version: 2
```

## Konfigurasi Resolv.conf

```
# operation for /etc/resolv.conf.

nameserver 192.168.10.30
nameserver 192.168.10.1
options edns0
search klass.com
```

## Konfigurasi Hosts



The screenshot shows a terminal window titled 'root@ikhlash-VirtualBox: /home/ikhlash'. The nano editor is open to the file '/etc/hosts'. The content of the file is as follows:

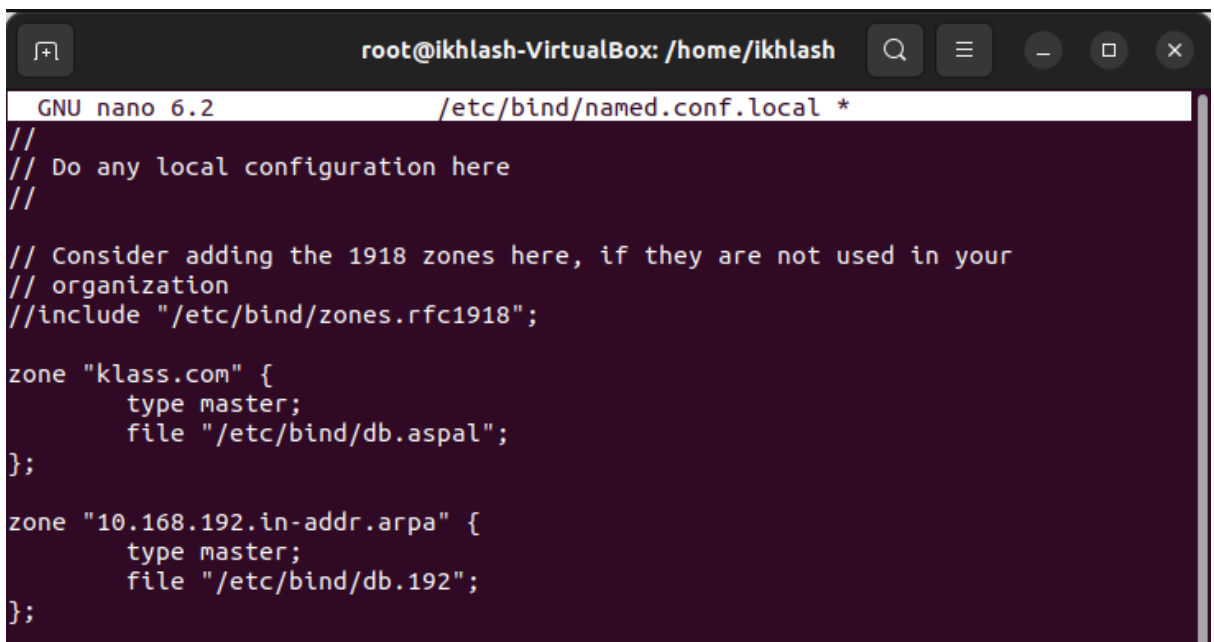
```
GNU nano 6.2 /etc/hosts
127.0.0.1    localhost
127.0.1.1    ikhlash-VirtualBox

192.168.10.30  klass.com

# The following lines are desirable for IPv6 capable hosts
::1          ip6-localhost ip6-loopback
fe00::0      ip6-localnet
ff00::0      ip6-mcastprefix
ff02::1      ip6-allnodes
ff02::2      ip6-allrouters
```

### 3. Konfigurasi DNS Server

Pada bagian ini BIND9 akan dikonfigurasi sebagai server utama dengan contoh nama domain menggunakan nama klass.com.



The screenshot shows a terminal window titled 'root@ikhlash-VirtualBox: /home/ikhlash'. The nano editor is open to the file '/etc/bind/named.conf.local'. The content of the file is as follows:

```
GNU nano 6.2 /etc/bind/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 "klass.com" {
    type master;
    file "/etc/bind/db.aspal";
};

zone "10.168.192.in-addr.arpa" {
    type master;
    file "/etc/bind/db.192";
};
```

## Membuat file /etc/bind/db.aspal

```
root@ikhlash-VirtualBox:/home/ikhlash# cp /etc/bind/db.local /etc/bind/db.aspal
root@ikhlash-VirtualBox:/home/ikhlash#
```

```
root@ikhlash-VirtualBox: /home/ikhlash
GNU nano 6.2 /etc/bind/db.aspal
;
; BIND data file for local loopback interface
;
$TTL      604800
@        IN      SOA      localhost. root.localhost. (
                        2      ; Serial
                        604800  ; Refresh
                        86400   ; Retry
                        2419200 ; Expire
                        604800 ) ; Negative Cache TTL
;
@        IN      NS       localhost.
@        IN      A        127.0.0.1
@        IN      AAAA     ::1
```

Simpan perubahan lalu restart service BIND9

```
root@ikhlash-VirtualBox:/home/ikhlash# systemctl restart bind9.service
root@ikhlash-VirtualBox:/home/ikhlash#
```

Membuat Reverse zone file. Reverse zone perlu ditambahkan untuk memungkinkan DNS untuk me resolv dari IP Address ke nama domain.

Edit file `/etc/bind/named.conf.local` lalu Tambahkan script dibawah ini.

```
root@ikhlash-VirtualBox: /home/ikhlash
GNU nano 6.2 /etc/bind/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 "klass.com" {
    type master;
    file "/etc/bind/db.aspal";
};

zone "10.168.192.in-addr.arpa" {
    type master;
    file "/etc/bind/db.192";
};
```

Selanjutnya buat file `/etc/bind/db.192`

```
root@ikhlash-VirtualBox:/home/ikhlash# cp /etc/bind/db.127 /etc/bind/db.192
root@ikhlash-VirtualBox:/home/ikhlash# nano /etc/bind/db.192
root@ikhlash-VirtualBox:/home/ikhlash#
```

```
root@ikhlash-VirtualBox: /home/ikhlash
GNU nano 6.2 /etc/bind/db.192
;
; BIND reverse data file for local loopback interface
;
$TTL      604800
@         IN      SOA      localhost. root.localhost. (
                        1          ; Serial
                        604800     ; Refresh
                        86400      ; Retry
                        2419200    ; Expire
                        604800 )   ; Negative Cache TTL
;
@         IN      NS       localhost.
1.0.0     IN      PTR      localhost.
```

systemctl restart bind9.service

```
root@ikhlash-VirtualBox:/home/ikhlash# systemctl restart bind9.service
root@ikhlash-VirtualBox:/home/ikhlash#
```

Mengganti dengan IP DNS dari ISP atau menggunakan IP DNS public disini saya mencoba menggunakan DNS public 8.8.8.8 dan 8.8.4.4 Edit file */etc/bind/named.conf.options* lalu konfigurasi seperti dibawah ini.

```
root@ikhlash-VirtualBox:/home/ikhlash# nano /etc/bind/named.conf.options
root@ikhlash-VirtualBox:/home/ikhlash#
```

```
root@ikhlash-VirtualBox: /home/ikhlash
GNU nano 6.2 /etc/bind/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 {
        8.8.8.8;
        8.8.4.4;
    };
};
```

Simpan perubahan lalu restart service BIND9

```
root@ikhlash-VirtualBox:/home/ikhlash# systemctl restart bind9.service
root@ikhlash-VirtualBox:/home/ikhlash#
```

#### 4. Pengetesan

Melakukan pengetesan jalankan nslookup nama domain.

```
root@ikhlash-VirtualBox:/home/ikhlash# nslookup klass.com
Server:          192.168.10.30
Address:         192.168.10.30#53

Name:   klass.com
Address: 127.0.0.1
Name:   klass.com
Address: ::1
```

Melakukan pengetesan ping ke domain.

```
root@ikhlash-VirtualBox:/home/ikhlash# ping klass.com
PING klass.com (192.168.10.30) 56(84) bytes of data.
64 bytes from klass.com (192.168.10.30): icmp_seq=1 ttl=64 time=2.38 ms
64 bytes from klass.com (192.168.10.30): icmp_seq=2 ttl=64 time=0.044 ms
64 bytes from klass.com (192.168.10.30): icmp_seq=3 ttl=64 time=0.103 ms
64 bytes from klass.com (192.168.10.30): icmp_seq=4 ttl=64 time=0.068 ms
64 bytes from klass.com (192.168.10.30): icmp_seq=5 ttl=64 time=0.051 ms
64 bytes from klass.com (192.168.10.30): icmp_seq=6 ttl=64 time=0.088 ms
64 bytes from klass.com (192.168.10.30): icmp_seq=7 ttl=64 time=0.120 ms
64 bytes from klass.com (192.168.10.30): icmp_seq=8 ttl=64 time=0.123 ms
64 bytes from klass.com (192.168.10.30): icmp_seq=9 ttl=64 time=0.025 ms
```

Pengetesan dari sisi PC Client

```
Command Prompt
Microsoft Windows [Version 10.0.22631.3296]
(c) Microsoft Corporation. All rights reserved.

C:\Users\User>ping klass.com

Pinging klass.com [75.2.70.75] with 32 bytes of data:
Reply from 75.2.70.75: bytes=32 time=13ms TTL=246
Reply from 75.2.70.75: bytes=32 time=13ms TTL=246
Reply from 75.2.70.75: bytes=32 time=12ms TTL=246
Reply from 75.2.70.75: bytes=32 time=11ms TTL=246

Ping statistics for 75.2.70.75:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 11ms, Maximum = 13ms, Average = 12ms

C:\Users\User>
```