

# **DOMAIN NAME SYSTEM**



**Disusun oleh :**

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- Instalasi DNS Server

Jakankan perintah berikut untuk install bind9

```
root@mint4-VirtualBox: /home/mint4
File Edit View Search Terminal Help
mint4@mint4-VirtualBox:~$ sudo su
[sudo] password for mint4:
root@mint4-VirtualBox:/home/mint4# apt install bind9
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  bind9-dnsutils bind9-host bind9-libs bind9-utils
Suggested packages:
  bind-doc resolvconf
```

Jika status firewall pada server rekan rekan aktif maka silahkan di Allow pada port 53 dengan perintah berikut

```
root@mint4-VirtualBox:/home/mint4# ufw allow 53
Rules updated
Rules updated (v6)
root@mint4-VirtualBox:/home/mint4#
```

- Konfigurasi Network Interface

Sebelumnya kita konfigurasi IP Address secara Static, Resolv.conf dan hosts seperti dibawah ini.

#### 1. Konfigurasi interface

```
root@mint4-VirtualBox: /home/mint4
File Edit View Search Terminal Help
GNU nano 6.2 /etc/netplan/00-installer-config.yaml *
network:
  ethernets:
    enp0s3:
      dhcp4: false
      addresses: [192.168.185.121/24]
      gateway4: 192.168.185.1
      nameservers:
        search: [ikhsan.com]
        addresses: [192.168.185.121, 192.168.185.1]
version: 2
```

#### 2. Konfigurasi Resolv.conf

```
nameserver 192.168.185.249
nameserver 192.168.185.249
options edns0
search ikhsan.com
```

### 3. Konfigurasi Hosts

```
root@mint4-VirtualBox: /home/mint4
File Edit View Search Terminal Help
GNU nano 6.2 /etc/hosts *
127.0.0.1 localhost
127.0.1.1 mint4-VirtualBox
192.168.185.249 ikhsan.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
```

- Konfigurasi DNS Server

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

```
root@mint4-VirtualBox: /home/mint4
File Edit View Search Terminal Help
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 "ikhsan.com" {
    type master;
    file "/etc/bind/db.ikhsan";
};
```

Ok selanjutnya gunakan file zone yang sudah ada sebagai template untuk membuat file /etc/bind/db.ikhsan

```
root@mint4-VirtualBox:/home/mint4# cp /etc/bind/db.local /etc/bind/db.ikhsan
root@mint4-VirtualBox:/home/mint4#
```

Lalu edit seperti dibawah ini.pada nano /etc/bind/db.ikhsan

```
root@mint4-VirtualBox: /home/mint4
File Edit View Search Terminal Help
GNU nano 6.2 /etc/bind/db.ikhsan *
;
; BIND data file for local loopback interface
;
$TTL      604800
@         IN      SOA      ns.ikhsan.com. root.ikhsan.com. (
                        2      ; Serial
                        604800 ; Refresh
                        86400  ; Retry
                        2419200; Expire
                        604800 )      ; Negative Cache TTL
;
@         IN      NS       ns.ikhsan.com.
@         IN      A        192.168.185.249
@         IN      MX       10      mail.ikhsan.com.
ns        IN      A        192.168.185.249
www       IN      CNAME     ns
mail      IN      A        192.168.185.249
```

Simpan perubahan lalu restart service BIND9

```
root@mint4-VirtualBox:/home/mint4# systemctl restart bind9.service
root@mint4-VirtualBox:/home/mint4#
```

Selanjutnya kita akan 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@mint4-VirtualBox: /home/mint4
File Edit View Search Terminal Help
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 "ikhsan.com" {
    type master;
    file "/etc/bind/db.ikhsan";
};

zone "185.168.192.in-addr.arpa" {
    type master;
    file "/etc/bind/db.192";
};
```

Selanjutnya buat file /etc/bind/db.192

```
root@mint4-VirtualBox:/home/mint4# cp /etc/bind/db.127 /etc/bind/db.192
root@mint4-VirtualBox:/home/mint4#
```

Lalu edit seperti dibawah ini.

```
root@mint4-VirtualBox: /home/mint4
File Edit View Search Terminal Help
GNU nano 6.2 /etc/bind/db.192 *
;
; BIND reverse data file for local loopback interface
;
$TTL      604800
@         IN      SOA      ns.ikhsan.com. root.ikhsan.com. (
                        1      ; Serial
                        604800  ; Refresh
                        86400   ; Retry
                        2419200 ; Expire
                        604800 ) ; Negative Cache TTL
;
@         IN      NS       ns.ikhsan.com.
1         IN      PTR      ns.ikhsan.com.
1         IN      PTR      www.ikhsan.com
1         IN      PTR      mail.ikhsan.com
```

Simpan perubahan lalu restart service BIND9

```
root@mint4-VirtualBox:/home/mint4# systemctl restart bind9.service
root@mint4-VirtualBox:/home/mint4#
```

DNS Caching berfungsi jika Client menggunakan DNS Local dan ingin terhubung dengan Internet. jadi PC Client masih bisa terhubung ke Internet meskipun Client menggunakan DNS Local. untuk konfigurasinya dengan uncomment pada bagian forwarders dan 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@mint4-VirtualBox: /home/mint4
File Edit View Search Terminal Help
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

    forwarders {
        8.8.8.8;
        8.8.4.4;
    };

    //=====
    // 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
    //=====
```

Simpan perubahan lalu restart service BIND9

```
root@mint4-VirtualBox:/home/mint4# systemctl restart bind9.service
root@mint4-VirtualBox:/home/mint4#
```

- Pengetesan

Untuk pengetesan jalankan nslookup nama domain anda.

```
root@mint4-VirtualBox:/home/mint4# nslookup www.ikhsan.com
Server:          192.168.185.249
Address:         192.168.185.249#53

www.ikhsan.com canonical name = ns.ikhsan.com.
Name:   ns.ikhsan.com
Address: 192.168.185.249

root@mint4-VirtualBox:/home/mint4#
```

Lalu test ping ke domain anda

```
root@mint4-VirtualBox:/home/mint4# ping -c 4 ikhsan.com
PING ikhsan.com (192.168.185.249) 56(84) bytes of data:
64 bytes from ikhsan.com (192.168.185.249): icmp_seq=1 ttl=64 time=0.022 ms
64 bytes from ikhsan.com (192.168.185.249): icmp_seq=2 ttl=64 time=0.030 ms
64 bytes from ikhsan.com (192.168.185.249): icmp_seq=3 ttl=64 time=0.034 ms
64 bytes from ikhsan.com (192.168.185.249): icmp_seq=4 ttl=64 time=0.024 ms

--- ikhsan.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3075ms
rtt min/avg/max/mdev = 0.022/0.027/0.034/0.004 ms
root@mint4-VirtualBox:/home/mint4# ^C
```

Pengetesan dari sisi PC Client

```
Microsoft Windows [Version 10.0.22631.3447]
(c) Microsoft Corporation. All rights reserved.

C:\Users\LENOVO>nslookup www.ikhsan.com
Server:      UnKnown
Address:     192.168.185.249

Name:   ns.ikhsan.com
Address: 192.168.185.249
Aliases: www.ikhsan.com

C:\Users\LENOVO>ping www.ikhsan.com

Pinging ns.ikhsan.com [192.168.185.249] with 32 bytes of data:
Reply from 192.168.185.249: bytes=32 time<1ms TTL=64
Reply from 192.168.185.249: bytes=32 time<1ms TTL=64
Reply from 192.168.185.249: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.185.249:
    Packets: Sent = 3, Received = 3, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
Control-C
^C
C:\Users\LENOVO>
```